

LINKSYS®

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USER GUIDE

Wireless-G Broadband Router with 2 Phone Ports



Model No: **WRP400**

About This Guide

Icon Descriptions

While reading through the User Guide you may see various icons that call attention to specific items. Below is a description of these icons:



NOTE: This check mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.



WARNING: This exclamation point indicates that there is a caution or warning and it is something that could damage your property or product.



WEB: This globe icon indicates a noteworthy website address or e-mail address.

Online Resources

Website addresses in this document are listed without **http://** in front of the address because most current web browsers do not require it. If you use an older web browser, you may have to add **http://** in front of the web address.

Resource	Website
Linksys	www.linksys.com
Linksys International	www.linksys.com/international
Glossary	www.linksys.com/glossary
Network Security	www.linksys.com/security

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Chapter 1:

Product Overview

Thank you for choosing the Linksys Wireless-G Broadband Router with 2 Phone Ports. The Router lets you access the Internet via a wireless connection or through one of its four switched ports. You can also use the Router to share resources such as computers, printers and files. The built-in phone adapter enables Voice-over-IP (VoIP) calls even while you are using the Internet.

Front Panel



USB The USB port is reserved for future use.



Wi-Fi Protected Setup (White/Orange) If you have client devices, such as wireless adapters, that support Wi-Fi Protected Setup, then you can use Wi-Fi Protected Setup to automatically configure wireless security for your wireless network(s).

To use Wi-Fi Protected Setup, refer to your wireless adapter's documentation.

The Wi-Fi Protected Setup button lights up white and stays on while wireless security is enabled on your wireless network(s). The button flashes orange if there is an error during the Wi-Fi Protected Setup process. Make sure the client device supports Wi-Fi Protected Setup, and then try again.



Power (Green/Red) The Power LED lights up green and stays on while the Router is powered on. When the Router goes through its self-diagnostic mode during every boot-up, the LED will flash. When the diagnostic is complete, it will be solidly lit green. If the LED lights up red, make sure the correct power adapter is used. If the LED remains red, contact your Internet Service Provider (ISP) or Internet Telephony Service Provider (ITSP) for support.



Phone 1-2 (Green) The Phone 1 or 2 LED lights up and stays on when an active line is registered to the corresponding port on the Router's back panel. The LED slowly flashes when voicemail messages are waiting.

Wireless (Green) The Wireless LED lights up when the wireless feature is enabled. It flashes when the Router is actively sending or receiving data over the network.



Ethernet 1-4 (Green) These numbered LEDs, corresponding with the numbered ports on the Router's back panel, serve two purposes. If the LED is solidly lit, the Router is connected to a device through that port. It flashes to indicate network activity over that port.



Internet (Green) The Internet LED lights up and stays on when there is a connection made through the Internet port. It flashes to indicate network activity over the Internet port.

Back Panel



Internet The Internet port is where you will connect your cable or DSL Internet connection.



Phone 1-2 The Phone ports connect standard analog telephones to the Router.



Ethernet 1, 2, 3, 4 These Ethernet ports (1, 2, 3, 4) connect the Router to wired computers and other Ethernet network devices.



Power The Power port is where you will connect the power adapter.

Side Panel



- **Reset** There are two ways to reset the Router's factory defaults. Either press and hold the Reset button for approximately ten seconds, or restore the defaults from the *Administration > Factory Defaults* screen of the Router's web-based utility. (The *Factory Defaults* screen allows you to restore the Router and voice defaults separately.)



NOTE: Restoring the voice defaults may require your login (the default user name and password are **admin**). If the defaults do not work, contact your ITSP for more information.

- **Stand** To place the Router in a vertical position, rotate the stand 90 degrees.

Placement Positions

There are three ways to physically install the Router. The first way is to place the Router horizontally on a surface. The second way is to stand the Router vertically on a surface. The third way is to mount the Router on a wall.

Horizontal Placement

The Router has four rubber feet on its bottom panel. Place the Router on a level surface near an electrical outlet.



Vertical Placement

The Router has a stand on the panel opposite to the antenna. Rotate the stand 90 degrees, and place the Router on a level surface near an electrical outlet.



Wall-Mounting Placement

The Router has four wall-mount slots on its back panel. The distance between two adjacent slots is 60 mm (2.36 inches).

Two screws are needed to mount the Router.

Suggested Mounting Hardware

		2.5-3.0 mm
4-5 mm	1-1.5 mm	

+Note: Mounting hardware illustrations are not true to scale.

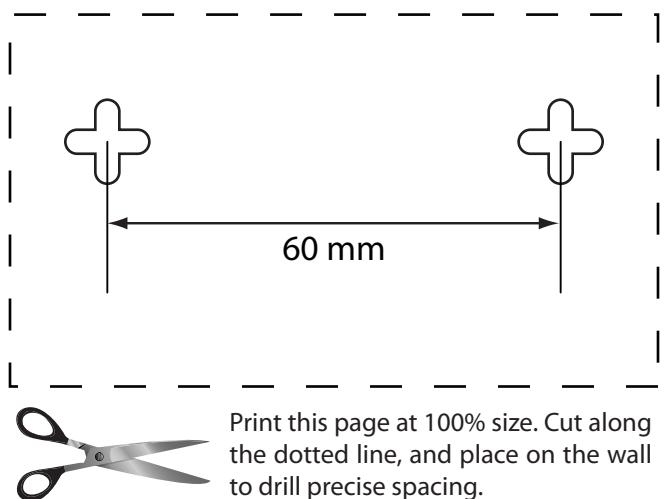


NOTE: Linksys is not responsible for damages incurred by insecure wall-mounting hardware.

Follow these instructions:

1. Determine where you want to mount the Router. Make sure that the wall you use is smooth, flat, dry, and sturdy. Also make sure the location is within reach of an electrical outlet.
2. Drill two holes into the wall. Make sure the holes are 60 mm (2.36 inches) apart.

3. Insert a screw into each hole and leave 3 mm (0.12 inches) of its head exposed.
4. Maneuver the Router so two of the wall-mount slots line up with the two screws.
5. Place the wall-mount slots over the screws and slide the Router down until the screws fit snugly into the wall-mount slots.



Chapter 2: Wireless Security Checklist

Wireless networks are convenient and easy to install, so homes with high-speed Internet access are adopting them at a rapid pace. Because wireless networking operates by sending information over radio waves, it can be more vulnerable to intruders than a traditional wired network. Like signals from your cellular or cordless phones, signals from your wireless network can also be intercepted. Since you cannot physically prevent someone from connecting to your wireless network, you need to take some additional steps to keep your network secure.



1. Change the default wireless network name or SSID

Wireless devices have a default wireless network name or Service Set Identifier (SSID) set by the factory. This is the name of your wireless network, and can be up to 32 characters in length. To distinguish your wireless network from other wireless networks that may exist around you, you should change the default wireless network name to something easily recognizable, but do not use personal information (such as your Social Security number) because this information may be available for anyone to see when browsing for wireless networks.



2. Change the default password

For wireless products such as access points and routers, you will be asked for a password when you want to change their settings. These devices have a default password set by the factory. The Linksys default password is **admin**. Hackers know these defaults and may try to use them to access your wireless device and change your network settings. To thwart any unauthorized changes, customize the device's password so it will be hard to guess.



3. Enable MAC address filtering

Linksys routers give you the ability to enable Media Access Control (MAC) address filtering. The MAC address is a unique series of numbers and letters assigned to every networking device. With MAC address filtering enabled, wireless network access is provided solely for wireless devices with specific MAC addresses. For example, you can specify the MAC address of each computer in your home so that only those computers can access your wireless network.



4. Enable encryption

Encryption protects data transmitted over a wireless network. Wi-Fi Protected Access (WPA/WPA2) and Wired Equivalency Privacy (WEP) offer different levels of security for wireless communication.

A network encrypted with WPA/WPA2 is more secure than a network encrypted with WEP, because WPA/WPA2 uses dynamic key encryption. To protect the information as it passes over the airwaves, you should enable the highest level of encryption supported by your network equipment.

WEP is an older encryption standard and may be the only option available on some older devices that do not support WPA.

General Network Security Guidelines

Wireless network security is useless if the underlying network is not secure.

- Password protect all computers on the network and individually password protect sensitive files.
- Change passwords on a regular basis.
- Install anti-virus software and personal firewall software.
- Disable file sharing (peer-to-peer). Some applications may open file sharing without your consent and/or knowledge.

Additional Security Tips

- Keep wireless routers, access points, or gateways away from exterior walls and windows.
- Turn wireless routers, access points, or gateways off when they are not being used (at night, during vacations).
- Use strong passphrases that are at least eight characters in length. Combine letters and numbers to avoid using standard words that can be found in the dictionary.



WEB: For more information on wireless security, visit www.linksys.com/security

Chapter 3:

Advanced Configuration

After setting up the Router with the Setup Wizard (located on the CD-ROM), the Router will be ready for use. However, if you'd like to change its advanced settings, use the Router's web-based utility. This chapter describes each web page of the utility and each page's key functions. You can access the utility via a web browser on a computer connected to the Router.

The web-based utility has these main tabs: Setup, Wireless, Security, Access Restrictions, Applications & Gaming, Administration, Status, and Voice. Additional tabs will be available after you click one of the main tabs.



NOTE: When first installing the Router, you should use the Setup Wizard on the Setup CD-ROM. If you want to configure advanced settings, use this chapter to learn about the web-based utility.

How to Access the Web-Based Utility

To access the web-based utility, launch the web browser on your computer, and enter the Router's default IP address, **192.168.15.1**, in the Address field. Then press **Enter**.



NOTE: If you place the Router behind a primary router with the IP address of 192.168.15.1, then the Router will automatically assume a new default IP address, **192.168.16.1**.

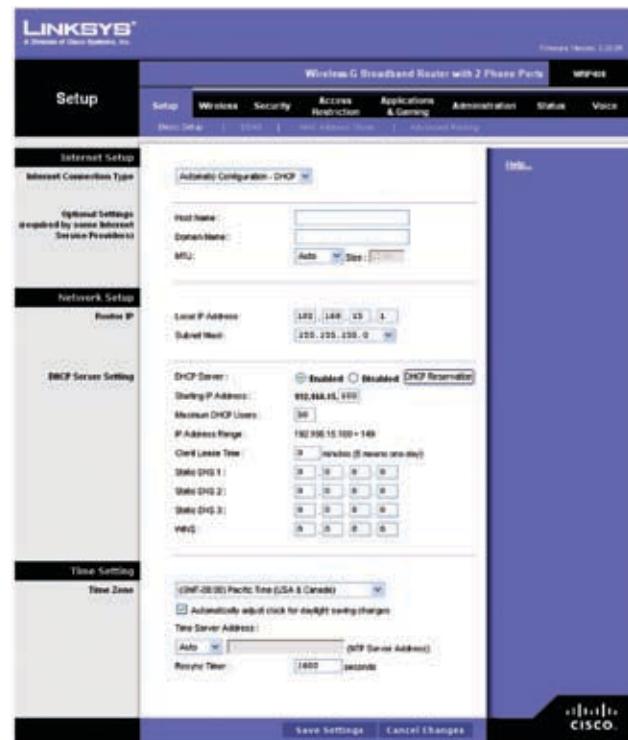
A login screen appears. The first time you open the web-based utility, use the default user name and password, **admin**. (You can set a new password from the Administration tab's *Management* screen.) Click **OK** to continue.



Login Screen

Setup > Basic Setup

The first screen that appears is the *Basic Setup* screen. This allows you to change the Router's general settings.



Setup > Basic Setup

Internet Setup

The Internet Setup section configures the Router to your Internet connection. Most of this information can be obtained through your Internet Service Provider (ISP).

Internet Connection Type

Select the type of Internet connection your ISP provides from the drop-down menu. These are the available types:

- Automatic Configuration - DHCP
- Static IP
- PPPoE
- PPTP
- L2TP
- Telstra Cable

Automatic Configuration - DHCP

By default, the Router's Internet Connection Type is set to **Automatic Configuration - DHCP**, which should be kept only if your ISP supports DHCP or you are connecting through a dynamic IP address. (This option usually applies to cable connections.)



Internet Connection Type > Automatic Configuration - DHCP

Static IP

If you are required to use a permanent IP address to connect to the Internet, select **Static IP**.

The screenshot shows a dropdown menu labeled 'Internet Connection Type' with 'Static IP' selected. Below it, there are input fields for 'Internet IP Address', 'Subnet Mask', 'Default Gateway', 'DNS 1', 'DNS 2(Optional)', and 'DNS 3(Optional)'. Each field consists of four input boxes for entering octets.

Internet Connection Type > Static IP

Internet IP Address This is the Router's IP address, when seen from the Internet. Your ISP will provide you with the IP address you need to specify here.

Subnet Mask This is the Router's Subnet Mask, as seen by users on the Internet (including your ISP). Your ISP will provide you with the Subnet Mask.

Default Gateway Your ISP will provide you with the IP address of the ISP server.

DNS 1-3 Your ISP will provide you with at least one DNS (Domain Name System) server IP address.

PPPoE

Some DSL-based ISPs use PPPoE (Point-to-Point Protocol over Ethernet) to establish Internet connections. If you are connected to the Internet through a DSL line, check with your ISP to see if they use PPPoE. If they do, you will have to enable **PPPoE**.

The screenshot shows a dropdown menu labeled 'Internet Connection Type' with 'PPPoE' selected. Below it, there are input fields for 'User Name', 'Password', and 'Service Name (Optional)'. At the bottom, there are two radio button options: 'Connect on Demand : Max Idle Time' with a '5 Min.' input field, and 'Keep Alive : Redial Period' with a '30 Sec.' input field.

Internet Connection Type > PPPoE

User Name and Password Enter the User Name and Password provided by your ISP.

Service Name (Optional) If provided by your ISP, enter the Service Name.

Connect on Demand: Max Idle Time You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. To use this option, select **Connect on Demand**. In the *Max Idle Time* field, enter the number of minutes you want to have elapsed before your Internet connection terminates. The default Max Idle Time is **5** minutes.

Keep Alive: Redial Period If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router will automatically re-establish your connection. To use this option, select **Keep Alive**. In the *Redial Period* field, you specify how often you want the Router to check the Internet connection. The default Redial Period is **30** seconds.

PPTP

Point-to-Point Tunneling Protocol (PPTP) is a service that applies to connections in Europe only.

The screenshot shows a dropdown menu labeled 'Internet Connection Type' with 'PPTP' selected. Below it, there are input fields for 'Internet IP Address', 'Subnet Mask', 'Default Gateway', 'User Name', and 'Password'. At the bottom, there are two radio button options: 'Connect on Demand : Max Idle Time' with a '5 Min.' input field, and 'Keep Alive : Redial Period' with a '30 Sec.' input field.

Internet Connection Type > PPTP

Internet IP Address This is the Router's IP address, as seen from the Internet. Enter the IP address provided by your ISP.

Subnet Mask This is the Router's Subnet Mask, as seen by users on the Internet (including your ISP). Enter the Subnet Mask provided by your ISP.

Default Gateway Enter the IP address of the ISP server, which is provided by your ISP.

User Name and Password Enter the User Name and Password provided by your ISP.

Connect on Demand: Max Idle Time You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. To use this option, select **Connect on Demand**. In the *Max Idle Time* field, enter the number of minutes you want to have elapsed before your Internet connection terminates. The default Max Idle Time is **5** minutes.

Keep Alive: Redial Period If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router will automatically re-establish your connection. To use this option, select **Keep Alive**. In the *Redial Period* field, you specify how often you want the Router to check the Internet connection. The default value is **30** seconds.

L2TP

L2TP is a service that applies to connections in Europe and Israel.

Internet Connection Type	L2TP
Server IP Address:	0 . 0 . 0 . 0
User Name:	<input type="text"/>
Password:	<input type="password"/>
<input type="radio"/> Connect on Demand : Max Idle Time 5 Min.	
<input checked="" type="radio"/> Keep Alive : Redial Period 30 Sec.	

Internet Connection Type > L2TP

Server IP Address This is the IP address of the L2TP Server. Enter the IP address provided by your ISP.

User Name and Password Enter the User Name and Password provided by your ISP.

Connect on Demand: Max Idle Time You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. To use this option, select **Connect on Demand**. In the *Max Idle Time* field, enter the number of minutes you want to have elapsed before your Internet connection terminates. The default Max Idle Time is **5** minutes.

Keep Alive: Redial Period If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router will automatically re-establish your connection. To use this option, select **Keep Alive**. In the *Redial Period* field, you specify how often you want the Router to check the Internet connection. The default Redial Period is **30** seconds.

Telstra Cable

Telstra Cable is a service used in Australia only.

Internet Connection Type	Telstra Cable
Heart Beat Server:	0 . 0 . 0 . 0
User Name:	<input type="text"/>
Password:	<input type="password"/>
<input type="radio"/> Connect on Demand : Max Idle Time 5 Min.	
<input checked="" type="radio"/> Keep Alive : Redial Period 30 Sec.	

Internet Connection Type > Telstra Cable

Heart Beat Server This is the IP address of the Heart Beat Server. Enter the IP address provided by your ISP.

User Name and Password Enter the User Name and Password provided by your ISP.

Connect on Demand: Max Idle Time You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If

your Internet connection has been terminated due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. To use this option, select **Connect on Demand**. In the *Max Idle Time* field, enter the number of minutes you want to have elapsed before your Internet connection terminates. The default Max Idle Time is **5** minutes.

Keep Alive: Redial Period If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router will automatically re-establish your connection. To use this option, select **Keep Alive**. In the *Redial Period* field, you specify how often you want the Router to check the Internet connection. The default Redial Period is **30** seconds.

Optional Settings

Some of these settings may be required by your ISP. Verify with your ISP before making any changes.

Optional Settings <small>(required by some Internet Service Providers)</small>	Host Name:	<input type="text"/>
	Domain Name:	<input type="text"/>
	MTU:	Auto Size: 1500

Optional Settings

Host Name and Domain Name These fields allow you to supply a host and domain name for the Router. Some ISPs, usually cable ISPs, require these names as identification. You may have to check with your ISP to see if your broadband Internet service has been configured with a host and domain name. In most cases, leaving these fields blank will work.

MTU MTU is the Maximum Transmission Unit. It specifies the largest packet size permitted for Internet transmission. Select Manual if you want to manually enter the largest packet size that is transmitted. To have the Router select the best MTU for your Internet connection, keep the default setting, **Auto**.

Size When Manual is selected in the *MTU* field, this option is enabled. Leave this value in the 576 to 1500 range. The default size depends on the Internet Connection Type:

- DHCP or Static IP: **1500**
- PPPoE: **1492**
- PPTP or L2TP: **1460**
- Telstra Cable: **1500**

Network Setup

The Network Setup section changes the settings on the network connected to the Router's Ethernet ports. Wireless setup is performed through the Wireless tab.

Router IP

This presents both the Router's Local IP Address and Subnet Mask as seen by your network.

Router IP	Local IP Address:	192.168.15.1
	Subnet Mask:	255.255.255.0

Router IP

DHCP Server Setting

The settings allow you to configure the Router's Dynamic Host Configuration Protocol (DHCP) server function. The Router can be used as a DHCP server for your network. A DHCP server automatically assigns an IP address to each computer on your network. If you choose to enable the Router's DHCP server option, make sure there is no other DHCP server on your network.

DHCP Server Setting	DHCP Server: <input checked="" type="radio"/> Enabled <input type="radio"/> Disabled <input type="checkbox"/> DHCP Reservation
Starting IP Address:	192.168.15.100
Maximum DHCP Users:	50
IP Address Range:	192.168.15.100 - 149
Client Lease Time:	0 minutes (0 means one day)
Static DNS 1:	0.0.0.0
Static DNS 2:	0.0.0.0
Static DNS 3:	0.0.0.0
WINS:	0.0.0.0

DHCP Server Setting

DHCP Server DHCP is enabled by factory default. If you already have a DHCP server on your network, or you don't want a DHCP server, then select **Disabled** (no other DHCP features will be available).

DHCP Reservation Click this button if you want to assign a fixed local IP address to a MAC address.

DHCP Reservation

You will see a list of DHCP clients with the following information: Client Name, Interface, IP Address, and MAC Address.

LINKSYS® A Division of Cisco Systems, Inc.				
DHCP Reservation				
Select Clients from DHCP Tables				
Client Name	Interface	IP Address	MAC Address	Select
None	None	None	None	<input type="checkbox"/>
Add Client				
Manually Adding Client				
Enter Client Name:	Assign IP Address:	To This MAC Address:		
	192.168.15.0	00:00:00:00:00:00	Add	
Clients Already Reserved				
Client Name	Assign IP Address	To This MAC Address	MAC Address	
test	192.168.15.12	00:00:00:00:00:12		Remove

DHCP Reservation

- **Select Clients from DHCP Table** Click the **Select** check box to reserve a client's IP address. Then click **Add Clients**.

- **Manually Adding Client** To manually assign an IP address, enter the client's name in the *Enter Client Name* field. Enter the IP address you want it to have in the *Assign IP Address* field. Enter its MAC address in the *To This MAC Address* field. Then click **Add**.

Clients Already Reserved

A list of DHCP clients and their fixed local IP addresses will be displayed at the bottom of the screen. If you want to remove a client from this list, click **Remove**.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes. To view the most up-to-date information, click **Refresh**. To exit this screen, click **Close**.

Starting IP Address Enter a value for the DHCP server to start with when issuing IP addresses. Because the Router's default IP address is 192.168.15.1, the Starting IP Address must be 192.168.15.2 or greater, but smaller than 192.168.15.253. The default Starting IP Address is **192.168.15.100**.

Maximum DHCP Users Enter the maximum number of computers that you want the DHCP server to assign IP addresses to. This number cannot be greater than 253. The default is **50**.

IP Address Range Displayed here is the range of available IP addresses.

Client Lease Time The Client Lease Time is the amount of time a network user will be allowed connection to the Router with their current dynamic IP address. Enter the amount of time, in minutes, that the user will be "leased" this dynamic IP address. After the time is up, the user will be automatically assigned a new dynamic IP address. The default is **0** minutes, which means one day.

Static DNS 1-3 The Domain Name System (DNS) is how the Internet translates domain or website names into Internet addresses or URLs. Enter at least one DNS server IP address, which is provided by your ISP. If you wish to use another, enter that IP address in one of these fields. You can enter up to three DNS server IP addresses here. The Router will use these for quicker access to functioning DNS servers.

WINS The Windows Internet Naming Service (WINS) manages each PC's interaction with the Internet. If you use a WINS server, enter that server's IP address here. Otherwise, leave this blank.

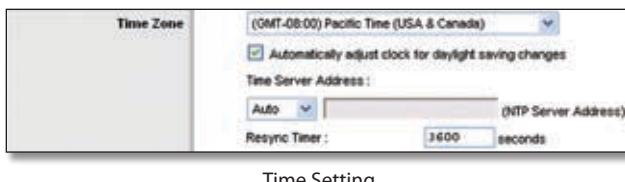
Time Setting

Time Zone Select the time zone in which your network functions from this drop-down menu.

Automatically adjust clock for daylight saving changes Select this option if you want the Router to automatically adjust for daylight saving time. This option is enabled by default.

Time Server Address If you want to use the Router's default Network Time Protocol (NTP) server, keep the default, **Auto**. If you want to specify the NTP server, select **Manual**, and enter the URL or IP address of the NTP server you want to use.

Resync Timer The timer controls how often the Router resyncs with the NTP server. Enter the number of seconds you want the interval to be, or keep the default, **3600** seconds.



Time Setting

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Setup > DDNS

The Router offers a Dynamic Domain Name System (DDNS) feature. DDNS lets you assign a fixed host and domain name to a dynamic Internet IP address. It is useful when you are hosting your own website, FTP server, or other server behind the Router.

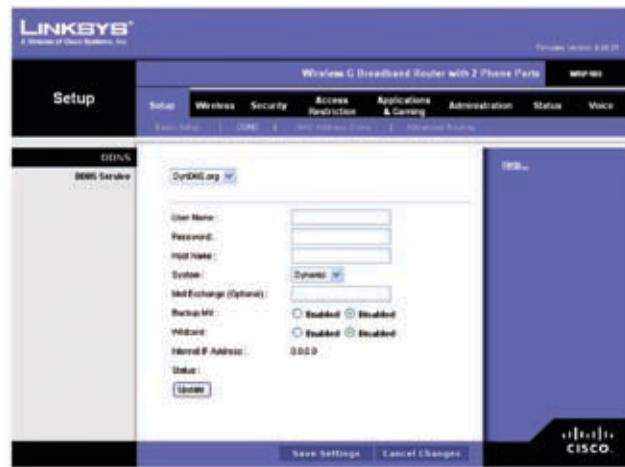
Before you can use this feature, you need to sign up for DDNS service with a DDNS service provider, www.dyndns.org or www.TZO.com. If you do not want to use this feature, keep the default setting, **Disabled**.

DDNS

DDNS Service

If your DDNS service is provided by DynDNS.org, then select **DynDNS.org** from the drop-down menu. If your DDNS service is provided by TZO, then select **TZO.com**. The features available on the DDNS screen will vary, depending on which DDNS service provider you use.

DynDNS.org



Setup > DDNS > DynDNS

User Name Enter the User Name for your DDNS account.

Password Enter the Password for your DDNS account.

Host Name The is the DDNS URL assigned by the DDNS service.

System Select the DynDNS service you use: **Dynamic**, **Static**, or **Custom**. The default selection is **Dynamic**.

Mail Exchange (Optional) Enter the address of your mail exchange server, so e-mails to your DynDNS address go to your mail server.

Backup MX This feature allows the mail exchange server to be a backup. To disable this feature, keep the default, **Disabled**. To enable the feature, select **Enabled**. If you are not sure which setting to select, keep the default, **Disabled**.

Wildcard This setting enables or disables wildcards for your host. For example, if your DDNS address is `myplace.dyndns.org` and you enable wildcards, then `x.myplace.dyndns.org` will work as well (x is the wildcard). To disable wildcards, keep the default, **Disabled**. To enable wildcards, select **Enabled**. If you are not sure which setting to select, keep the default, **Disabled**.

Internet IP Address The Router's Internet IP address is displayed here. Because it is dynamic, it will change.

Status The status of the DDNS service connection is displayed here.

Update To manually trigger an update, click this button.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

TZO.com



Setup > DDNS > TZO

E-mail Address, TZO Key, and Domain Name Enter the settings of the account you set up with TZO.

Internet IP Address The Router's Internet IP address is displayed here. Because it is dynamic, it will change.

Status The status of the DDNS service connection is displayed here.

Update To manually trigger an update, click this button.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Setup > MAC Address Clone

A MAC address is a 12-digit code assigned to a unique piece of hardware for identification. Some ISPs will require you to register a MAC address in order to access the Internet. If you do not wish to re-register the MAC address with your ISP, you may assign the MAC address you have currently registered with your ISP to the Router with the MAC Address Clone feature.



Setup > MAC Address Clone

MAC Address Clone

Enabled/Disabled To have the MAC address cloned, select **Enabled**.

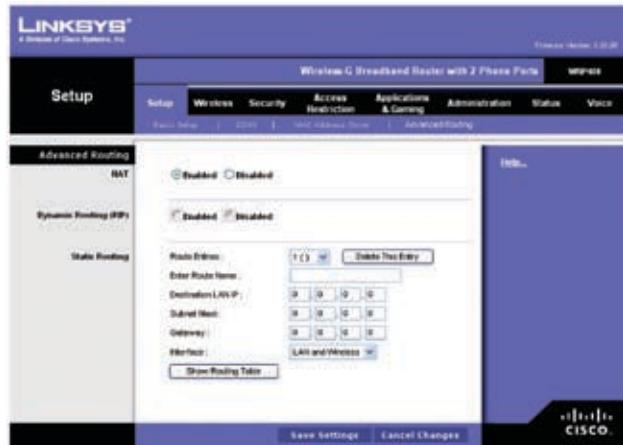
MAC Address Enter the MAC address registered with your ISP here.

Clone Your PC's MAC Click this button to clone the MAC address of the computer you are using.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Setup > Advanced Routing

This screen is used to set up the Router's advanced functions. Operating Mode allows you to select the type(s) of advanced functions you use. Dynamic Routing automatically adjusts how packets travel on your network. Static Routing sets up a fixed route to another network destination.



Setup > Advanced Routing

Advanced Routing

NAT

Enabled/Disabled If this Router is hosting your network's connection to the Internet, keep the default, **Enabled**. If another router exists on your network, select **Disabled**. When the NAT setting is disabled, dynamic routing will be enabled.

Dynamic Routing (RIP)

Enabled/Disabled This feature enables the Router to automatically adjust to physical changes in the network's layout and exchange routing tables with the other router(s). The Router determines the network packets' route based on the fewest number of hops between the source and the destination. When the NAT setting is enabled, the Dynamic Routing feature is automatically disabled. When the NAT setting is disabled, this feature is available. Select **Enabled** to use the Dynamic Routing feature.

Static Routing

A static route is a pre-determined pathway that network information must travel to reach a specific host or network.

Enter the information described below to set up a new static route.

Route Entries To set up a static route between the Router and another network, select a number from the drop-down list. Click **Delete This Entry** to delete a static route.

Enter Route Name Enter a name for the Route here, using a maximum of 25 alphanumeric characters.

Destination LAN IP The Destination LAN IP is the address of the remote network or host to which you want to assign a static route.

Subnet Mask The Subnet Mask determines which portion of a Destination LAN IP address is the network portion, and which portion is the host portion.

Gateway This is the IP address of the gateway device that allows for contact between the Router and the remote network or host.

Interface This interface tells you whether the Destination LAN IP address is on the **LAN and Wireless** (Ethernet and wireless networks) or the **Internet (WAN)**.

Click **Show Routing Table** to view the static routes you have already set up.

Routing Table			
Destination LAN IP	Subnet Mask	Gateway	Interface
192.168.15.0	255.255.296.0	0.0.0	LAN & Wireless;
224.0.0.0	240.0.0.0	0.0.0	LAN & Wireless;

Advanced Routing > Routing Table

Routing Table

For each route, the Destination LAN IP address, Subnet Mask, Gateway, and Interface are displayed. Click **Refresh** to update the information. Click **Close** to exit this screen.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Wireless > Basic Wireless Settings

The basic settings for wireless networking are set on this screen.



Wireless > Basic Wireless Settings

There are two ways to configure the Router's wireless network(s), manual and Wi-Fi Protected Setup. To manually configure the wireless settings, use the *Basic Wireless Settings* screen.

If you have client devices, such as wireless adapters, that support Wi-Fi Protected Setup, then you can use Wi-Fi Protected Setup to automatically configure wireless security for your wireless network(s). To use Wi-Fi Protected Setup, refer to your wireless adapter's documentation.



NOTE: If you have client devices that do not support Wi-Fi Protected Setup, click the **Wireless Security** tab. Note the security settings, and then manually enter them on those devices.

Wireless Network

Network Mode From this drop-down menu, you can select the wireless standards running on your network(s). If you have Wireless-G and Wireless-B devices in your network(s), keep the default setting, **Mixed**. If you have only Wireless-G devices, select **Wireless-G only**. If you have only Wireless-B devices, select **Wireless-B only**.

Wireless Channel Select the channel you want to use. To allow the Router to select the best available wireless channel, keep the default, **Auto**.

SSID1/2 The SSID is the network name shared among all devices in a wireless network. The Router can support up to two wireless networks. By default, one wireless network is enabled, and you can create a second wireless network.

Configure the following settings for each wireless network:

- Wireless Network Name (SSID)** The default wireless network uses this name: "linksys" followed by the last four digits of the Router's wireless MAC address. To rename the default wireless network, enter a unique Wireless Network Name, which is case-sensitive and must not exceed 32 characters (use any of the characters on the keyboard).

To create a second wireless network, enter a unique Wireless Network Name in the SSID2 setting. (To activate this network, select **Network Enabled**.)



NOTE: Your ISP or ITSP may control the SSID2 settings. Contact your ISP or ITSP for more information.

- SSID Broadcast Enabled** When wireless clients survey the local area for wireless networks to associate with, they detect the SSID broadcast by the Router. If you want to broadcast the SSID, keep the check box selected. If you do not want to broadcast the SSID, deselect the check box.
- Network Enabled** To enable the wireless network, select the check box. To disable the wireless network, deselect the check box.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Wireless > Wireless Security

The *Wireless Security* screen configures the security of your wireless network(s). The Router supports the following wireless security mode options: WPA Personal, WPA Enterprise, WPA2 Personal, WPA2 Enterprise, and WEP. (WPA stands for Wi-Fi Protected Access, which is a security standard stronger than WEP encryption. WEP stands for Wired Equivalent Privacy.) These options are briefly discussed here. For detailed instructions on configuring wireless security for the Router, refer to "Chapter 2: Wireless Security."



NOTE: If you used Wi-Fi Protected Setup to configure your wireless network(s), then wireless security has already been set up. Do not make changes to the *Wireless Security* screen.

Wireless Security

Select a SSID Select the appropriate SSID. (If you enabled the second wireless network on the *Basic Wireless Settings* screen, then set up wireless security for each SSID.)

Security Mode

Select the security method for your wireless network. Proceed to the appropriate instructions. If you do not want to use wireless security, keep the default, **Disabled**.

WPA Personal



NOTE: If you are using WPA, always remember that each device in your wireless network MUST use the same WPA method and shared key, or else the network will not function properly.



Security Mode > WPA Personal

WPA Algorithms WPA supports two encryption methods, TKIP and AES, with dynamic encryption keys. Select the type of algorithm, **TKIP** or **AES**. The default is **TKIP**.

WPA Shared Key Enter a WPA Shared Key of 8-63 characters.

Group Key Renewal Enter a Group Key Renewal period, which instructs the Router how often it should change the encryption keys. The default is **3600** seconds.

WPA2 Personal



Security Mode > WPA2 Personal

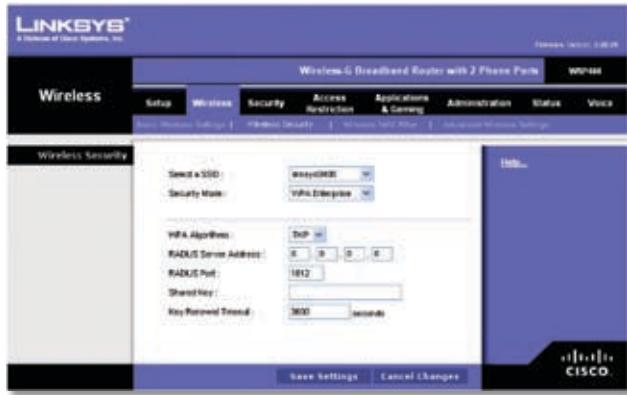
WPA Algorithms WPA2 supports two encryption methods, TKIP and AES, with dynamic encryption keys. Select the type of algorithm, **AES** or **TKIP + AES**. The default is **TKIP + AES**.

WPA Shared Key Enter a WPA Shared Key of 8-63 characters.

Group Key Renewal Enter a Group Key Renewal period, which instructs the Router how often it should change the encryption keys. The default is **3600** seconds.

WPA Enterprise

This option features WPA used in coordination with a RADIUS server. (RADIUS stands for Remote Authentication Dial-In User Service. This option should only be used when a RADIUS server is connected to the Router.)



Security Mode > WPA Enterprise

WPA Algorithms WPA supports two encryption methods, TKIP and AES, with dynamic encryption keys. Select the type of algorithm, **TKIP** or **AES**. The default is **TKIP**.

RADIUS Server Address Enter the IP address of the RADIUS server.

RADIUS Port Enter the port number of the RADIUS server. The default value is **1812**.

Shared Key Enter the key shared between the Router and the server.

Key Renewal Timeout Enter a Key Renewal Timeout period, which instructs the Router how often it should change the encryption keys. The default is **3600** seconds.

WPA2 Enterprise

This option features WPA2 used in coordination with a RADIUS server. (It should only be used when a RADIUS server is connected to the Router.)



Security Mode > WPA2 Enterprise

WPA Algorithms WPA2 supports two encryption methods, TKIP and AES, with dynamic encryption keys. Select the type of algorithm, **AES** or **TKIP + AES**. The default is **TKIP + AES**.

RADIUS Server Address Enter the IP address of the RADIUS server.

RADIUS Port Enter the port number of the RADIUS server. The default value is **1812**.

Shared Key Enter the key shared between the Router and the server.

Key Renewal Timeout Enter a Key Renewal Timeout period, which instructs the Router how often it should change the encryption keys. The default is **3600** seconds.

WEP

WEP is a basic encryption method, which is not as secure as WPA.



Security Mode > WEP

Encryption Select a level of WEP encryption, **64 bits 10 hex digits** or **128 bits 26 hex digits**. The default is **64 bits 10 hex digits**.

Passphrase Enter a Passphrase to automatically generate WEP keys. Then click **Generate**.

Key 1-4 If you did not enter a Passphrase, enter the WEP key(s) manually.

TX Key Select which TX (Transmit) Key to use. The default is **1**.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Wireless > Wireless MAC Filter

Wireless access can be filtered by using the MAC addresses of the wireless devices transmitting within your network's radius.



Wireless > Wireless MAC Filter

Wireless MAC Filter

Select a SSID Select the appropriate SSID. (If you enabled the second wireless network on the *Basic Wireless Settings* screen, then set up wireless MAC filtering for each SSID.)

Wireless MAC Filter To filter wireless users by MAC address, either permitting or blocking access, select **Enabled**. If you do not wish to filter users by MAC address, keep the default setting, **Disabled**.

Access Restriction

Prevent Select this to block wireless access by MAC address. This button is selected by default.

Permit Select this to allow wireless access by MAC address. This button is not selected by default.

MAC Address Filter List

Wireless Client List Click this to open the *Wireless Client List* screen.

Wireless Client List

Wireless Client List

This screen shows the online and offline devices of the wireless network(s). The device information includes Client Name, IP Address, MAC Address, and Status.

Select **Save to MAC Address Filter List** for any device you want to add to the MAC Address Filter List. Then click **Add**.

To retrieve the most up-to-date information, click **Refresh**. To exit this screen and return to the *Wireless MAC Filter* screen, click **Close**.

MAC 01-40 Enter the MAC addresses of the devices whose wireless access you want to block or allow.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Wireless > Advanced Wireless Settings

The *Advanced Wireless Settings* screen is used to set up the Router's advanced wireless functions. These settings should only be adjusted by an expert administrator as incorrect settings can reduce wireless performance.



Wireless > Advanced Wireless Settings

Advanced Wireless

Authentication Type The default is set to **Auto**, which allows either Open System or Shared Key authentication to be used. With Open System authentication, the sender and the recipient do NOT use a WEP key for authentication. With Shared Key authentication, the sender and recipient use a WEP key for authentication. Select **Shared Key** to only use Shared Key authentication.

Transmission Rate The rate of data transmission should be set depending on the speed of your wireless network(s). You can select from a range of transmission speeds, or you can select **Auto** to have the Router automatically use the fastest possible data rate and enable the Auto-Fallback feature. Auto-Fallback will negotiate the best possible connection speed between the Router and a wireless client. The default is **Auto**.

CTS Protection Mode The Router will automatically use CTS (Clear-To-Send) Protection Mode when your Wireless-G products are experiencing severe problems and are not able to transmit to the Router in an environment with heavy 802.11b traffic. This function boosts the Router's ability to catch all Wireless-G transmissions but will severely decrease performance. The default is **Auto**.

Beacon Interval Enter a value between 1 and 65,535 milliseconds. The Beacon Interval value indicates the frequency interval of the beacon. A beacon is a packet broadcast by the Router to synchronize the wireless network(s). The default value is **100**.

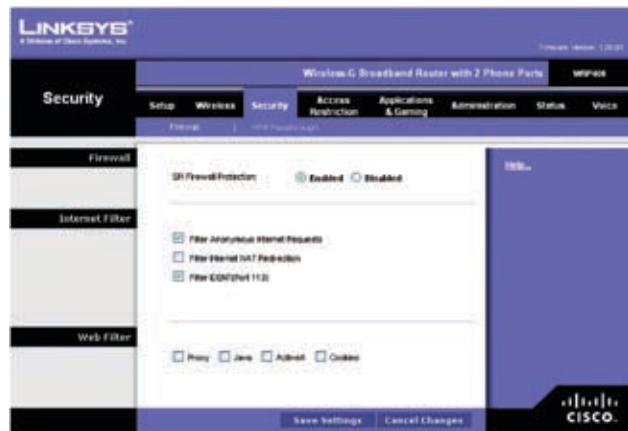
DTIM Interval This value, between 1 and 255, indicates the interval of the Delivery Traffic Indication Message (DTIM). A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the Router has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. Its clients hear the beacons and awaken to receive the broadcast and multicast messages. The default value is **1**.

RTS Threshold Should you encounter inconsistent data flow, only minor reduction of the default value, **2347**, is recommended. If a network packet is smaller than the preset RTS threshold size, the RTS/CTS mechanism will not be enabled. The Router sends Request to Send (RTS) frames to a particular receiving station and negotiates the sending of a data frame. After receiving an RTS, the wireless station responds with a Clear to Send (CTS) frame to acknowledge the right to begin transmission. The RTS Threshold value should remain at its default value of **2347**.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Security > Firewall

The *Firewall* screen is used to configure a firewall that can filter out various types of unwanted traffic on the Router's local network.



Security > Firewall

Firewall

SPI Firewall Protection To use firewall protection, keep the default, **Enabled**. To turn off firewall protection, select **Disabled**.

Internet Filter

Filter Anonymous Internet Requests This feature makes it more difficult for outside users to work their way into your network. This feature is selected by default. Deselect the feature to allow anonymous Internet requests.

Filter Internet NAT Redirection This feature uses port forwarding to block access to local servers from local networked computers. Select this feature to filter Internet NAT redirection. It is not selected by default.

Filter IDENT (Port 113) This feature keeps port 113 from being scanned by devices outside of your local network. This feature is selected by default. Deselect this feature to disable it.

Web Filter

Proxy Use of WAN proxy servers may compromise the Router's security. Denying Proxy will disable access to any WAN proxy servers. Select this feature to enable proxy filtering. Deselect the feature to allow proxy access.

Java Java is a programming language for websites. If you deny Java, you run the risk of not having access to Internet sites created using this programming language. Select this feature to enable Java filtering. Deselect the feature to allow Java usage.

ActiveX ActiveX is a programming language for websites. If you deny ActiveX, you run the risk of not having access to Internet sites created using this programming language. Select this feature to enable ActiveX filtering. Deselect the feature to allow ActiveX usage.

Cookies A cookie is data stored on your computer and used by Internet sites when you interact with them. Select this feature to filter cookies. Deselect the feature to allow cookie usage.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Security > VPN Passthrough

The *VPN Passthrough* screen allows you to enable VPN tunnels using IPSec, PPTP, or L2TP protocols to pass through the Router's firewall.



Security > VPN Passthrough

VPN Passthrough

IPSec Passthrough Internet Protocol Security (IPSec) is a suite of protocols used to implement secure exchange of packets at the IP layer. To allow IPSec tunnels to pass through the Router, keep the default, **Enabled**.

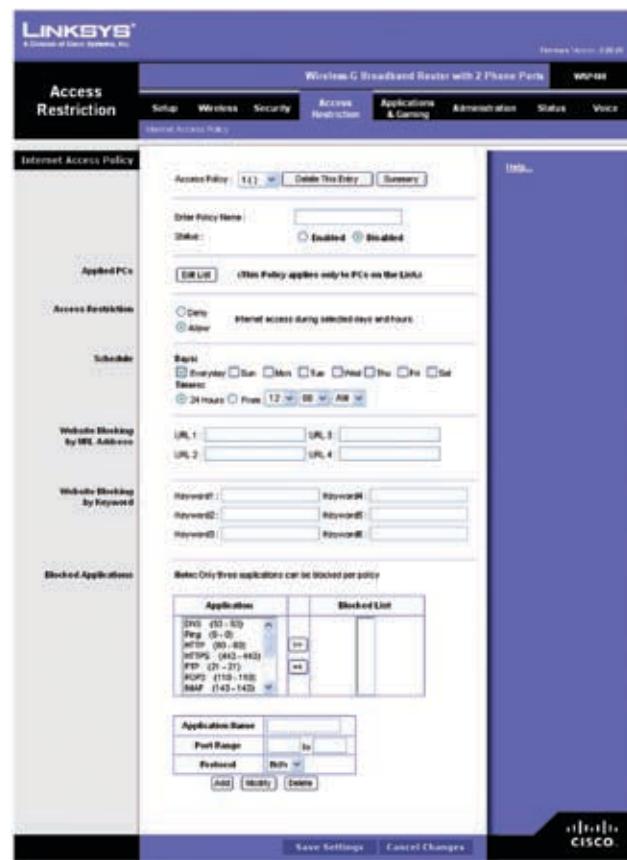
PPTP Passthrough Point-to-Point Tunneling Protocol (PPTP) allows the Point-to-Point Protocol (PPP) to be tunneled through an IP network. To allow PPTP tunnels to pass through the Router, keep the default, **Enabled**.

L2TP Passthrough Layer 2 Tunneling Protocol is the method used to enable Point-to-Point sessions via the Internet on the Layer 2 level. To allow L2TP tunnels to pass through the Router, keep the default, **Enabled**.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Access Restrictions > Internet Access

The *Internet Access* screen allows you to block or allow specific kinds of Internet usage and traffic, such as Internet access, designated services, and websites during specific days and times.



Access Restrictions > Internet Access

Internet Access Policy

Access Policy Access can be managed by a policy. Use the settings on this screen to establish an access policy (after **Save Settings** is clicked). Selecting a policy from the drop-down menu will display that policy's settings. To delete a policy, select that policy's number and click **Delete This Policy**. To view all the policies, click **Summary**.

Summary

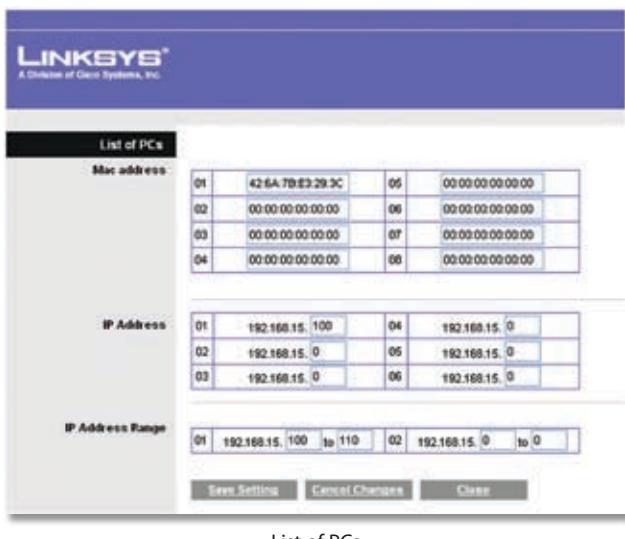
The policies are listed with the following information: No., Policy Name, Access, Days, Time of Day, and status (Enabled). To enable a policy, select **Enabled**. To delete a policy, click **Delete**. Click **Save Settings** to save your changes, or click **Cancel Changes** to cancel your changes. To return to the *Internet Access Policy* screen, click **Close**.



Status Policies are disabled by default. To enable a policy, select the policy number from the drop-down menu, and select **Enabled**.

To create a policy, follow steps 1-11. Repeat these steps to create additional policies, one at a time.

1. Select a number from the *Access Policy* drop-down menu.
2. Enter a Policy Name in the field provided.
3. To enable this policy, select **Enabled**.
4. Click **Edit List** to select which computers will be affected by the policy. The *List of PCs* screen appears. You can select a PC by MAC address or IP address. You can also enter a range of IP addresses if you want this policy to affect a group of computers. After making your changes, click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes. Then click **Close**.



5. Select the appropriate option, **Deny** or **Allow**, depending on whether you want to block or allow Internet access for the computers you listed on the *List of PCs* screen.

6. Decide which days and what times you want this policy to be enforced. Select the individual days during which the policy will be in effect, or select **Everyday**. Then enter a range of hours and minutes during which the policy will be in effect, or select **24 Hours**.
7. You can block websites with specific URL addresses. Enter each URL in a separate *URL* field.
8. You can also block websites using specific keywords. Enter each keyword in a separate *Keyword* field.
9. You can filter access to various services accessed over the Internet, such as FTP or telnet. (You can block up to three applications per policy.)

From the Applications list, select the application you want to block. Then click the **>>** button to move it to the Blocked List. To remove an application from the Blocked List, select it and click the **<<** button.

10. If the application you want to block is not listed or you want to edit a service's settings, enter the application's name in the *Application Name* field. Enter its range in the *Port Range* fields. Select its protocol from the *Protocol* drop-down menu. Then click **Add**.

To modify a service, select it from the Application list. Change its name, port range, and/or protocol setting. Then click **Modify**.

To delete a service, select it from the Application list. Then click **Delete**.

11. Click **Save Settings** to save the policy's settings. To cancel the policy's settings, click **Cancel Changes**.

Applications and Gaming > Single Port Forwarding

The *Single Port Forwarding* screen allows you to customize port services for common applications on this screen.

When users send these types of requests to your network via the Internet, the Router will forward those requests to the appropriate servers (computers). Before using forwarding, you should assign static IP addresses to the designated servers (use the DHCP Reservation feature on the *Basic Setup* screen).



Applications and Gaming > Single Port Forwarding

Single Port Forwarding

Common applications are available for the first five entries. Select the appropriate application. Then enter the IP address of the server that should receive these requests. Select **Enabled** to activate this entry.

For additional applications, complete the following fields:

Application Name Enter the name you wish to give the application. Each name can be up to 12 characters.

External Port Enter the external port number used by the server or Internet application. Check with the Internet application documentation for more information.

Internal Port Enter the internal port number used by the server or Internet application. Check with the Internet application documentation for more information.

Protocol Select the protocol used for this application, either **TCP**, **UDP**, or **Both**.

To IP Address For each application, enter the IP address of the PC that should receive the requests. If you assigned a static IP address to the PC, then you can click **DHCP Reservation** on the *Basic Setup* screen to look up its static IP address.

Enabled For each application, select **Enabled** to enable port forwarding.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

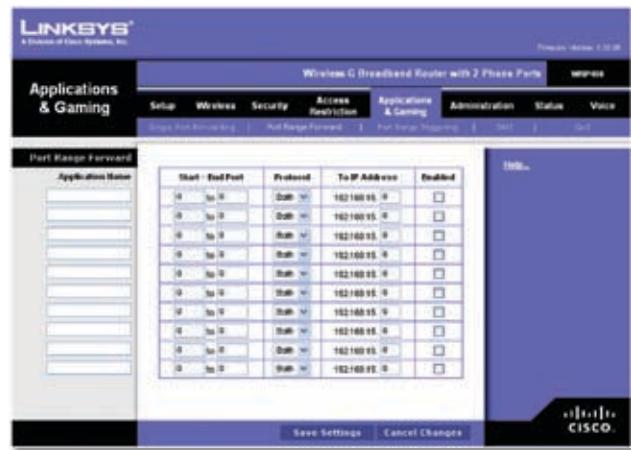
Applications and Gaming > Port Range Forward

The *Port Range Forward* screen allows you to set up public services on your network, such as web servers, ftp servers, e-mail servers, or other specialized Internet applications. (Specialized Internet applications are any applications

that use Internet access to perform functions such as videoconferencing or online gaming. Some Internet applications may not require any forwarding.)

When users send these types of requests to your network via the Internet, the Router will forward those requests to the appropriate servers (computers). Before using forwarding, you should assign static IP addresses to the designated servers (use the DHCP Reservation feature on the *Basic Setup* screen).

If you need to forward all ports to one computer, click the **PMZ** tab.



Applications and Gaming > Port Range Forward

Port Range Forward

To forward a port, enter the information on each line for the criteria required.

Application Name In this field, enter the name you wish to give the application. Each name can be up to 12 characters.

Start~End Port Enter the number or range of port(s) used by the server or Internet applications. Check with the Internet application documentation for more information.

Protocol Select the protocol used for this application, either **TCP**, **UDP**, or **Both**.

To IP Address For each application, enter the IP address of the PC running the specific application. If you assigned a static IP address to the PC, then you can click **DHCP Reservation** on the *Basic Setup* screen to look up its static IP address.

Enabled Select **Enabled** to enable port forwarding for the applications you have defined.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Applications & Gaming > Port Range Triggering

The *Port Range Triggering* screen allows the Router to watch outgoing data for specific port numbers. The IP address of the computer that sends the matching data is remembered by the Router, so that when the requested data returns through the Router, the data is pulled back to the proper computer by way of IP address and port mapping rules.



Applications and Gaming > Port Range Triggering

Port Range Triggering

Application Name Enter the application name of the trigger.

Triggered Range For each application, enter the starting and ending port numbers of the triggered port number range. Check with the Internet application documentation for the port number(s) needed.

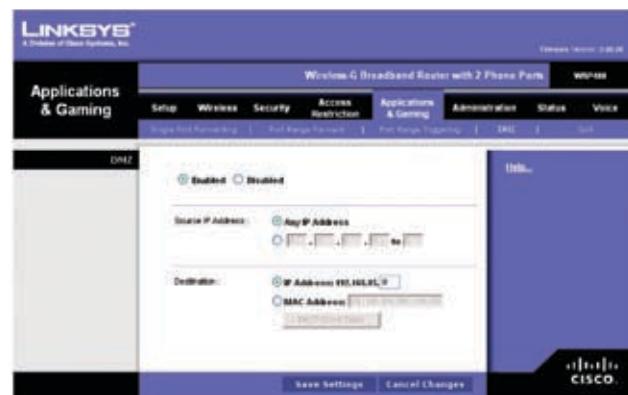
Forwarded Range For each application, enter the starting and ending port numbers of the forwarded port number range. Check with the Internet application documentation for the port number(s) needed.

Enabled Select **Enabled** to enable port triggering for the applications you have defined.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Applications and Gaming > DMZ

The DMZ feature allows one network computer to be exposed to the Internet for use of a special-purpose service such as Internet gaming or videoconferencing. DMZ hosting forwards all the ports at the same time to one PC. The Port Range Forwarding feature is more secure because it only opens the ports you want to have opened, while DMZ hosting opens all the ports of one computer, exposing the computer to the Internet.



Applications and Gaming > DMZ

DMZ

Any PC whose port is being forwarded must have its DHCP client function disabled and should have a new static IP address assigned to it because its IP address may change when using the DHCP function.

Enabled/Disabled To disable DMZ hosting, select **Disabled**. To expose one PC, select **Enabled**. Then configure the following settings:

Source IP Address If you want any IP address to be the source, select **Any IP Address**. If you want to specify an IP address or range of IP addresses as the designated source, select and complete the IP address range fields.

Destination If you want to specify the DMZ host by IP address, select **IP Address** and enter the IP address in the field provided. If you want to specify the DMZ host by MAC address, select **MAC Address** and enter the MAC address in the field provided. To retrieve this information, click **DHCP Client Table**.

DHCP Client Table			
To Sort By			
Client Name	IP Address	MAC Address	
http	192.168.1.100	00:01:8C:EA:DA:81	Select
http	192.168.1.101	00:0E:9B:9A:39:B2	Select

DMZ > DHCP Client Table

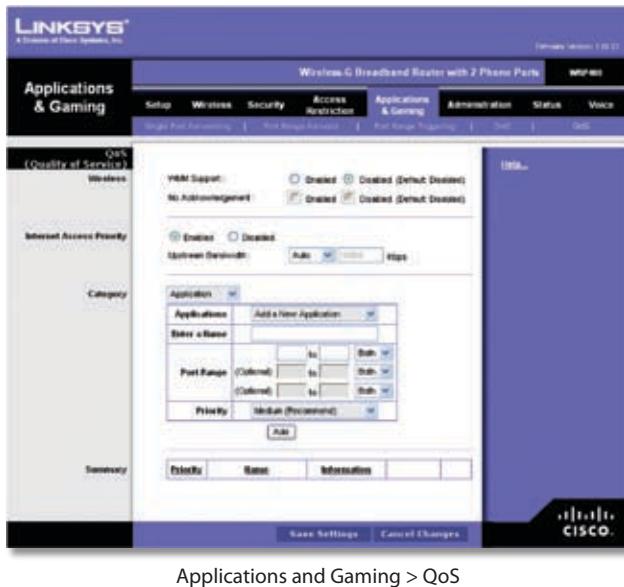
DHCP Client Table

The DHCP Client Table lists computers and other devices that have been assigned IP addresses by the Router. The list can be sorted by Client Name, IP Address, and MAC Address. To select a DHCP client, click **Select**. To retrieve the most up-to-date information, click **Refresh**. To exit this screen and return to the DMZ screen, click **Close**.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Applications and Gaming > QoS

Quality of Service (QoS) ensures better service to high-priority types of network traffic, which may involve demanding, real-time applications, such as videoconferencing.



Applications and Gaming > QoS

QoS (Quality of Service)

Wireless

WMM Support If you have other devices that support Wi-Fi Multimedia (WMM) on your network, select **Enabled**. Otherwise, keep the default, **Disabled**.

No Acknowledgement If you want to disable the Router's Acknowledgement feature, so the Router will not re-send data if an error occurs, then select **Enabled**. Otherwise, keep the default, **Disabled**.

Internet Access Priority

In this section, you can set the bandwidth priority for a variety of applications and devices. There are four levels priority: High, Medium, Normal, or Low. When you set priority, do not set all applications to High, because this will defeat the purpose of allocating the available bandwidth. If you want to select below normal bandwidth, select Low. Depending on the application, a few attempts may be needed to set the appropriate bandwidth priority.

Enabled/Disabled To use the QoS policies you have set, keep the default, **Enabled**. Otherwise, select **Disabled**.

Upstream Bandwidth To allow the Router to control the maximum bandwidth for upstream data transmissions, keep the default, **Auto**. To manually set the maximum,

select **Manual**, and enter the appropriate number in the field provided.

Category

There are four categories available. Select one of the following: **Application**, **Online Games**, **MAC Address**, or **Ethernet Port**. Proceed to the instructions for your selection.

Application

Applications Select the appropriate application. If you select Add a New Application, follow the Add a New Application instructions.

Priority Select the appropriate priority: **High**, **Medium**, **Normal**, or **Low**.

Click **Add** to save your changes. Your new entry will appear in the Summary list.

Add a New Application

Category	Application
	Applications Add a New Application
	Enter a Name
	Port Range (Optional) to Both
	(Optional) to Both
	Priority Medium (Recommend)
	Add

QoS > Add a New Application

Enter a Name Enter any name to indicate the name of the entry.

Port Range Enter the port range that the application will be using. For example, if you want to allocate bandwidth for FTP, you can enter 21-21. If you need services for an application that uses from 1000 to 1250, you enter 1000-1250 as your settings. You can have up to three ranges to define for this bandwidth allocation. Port numbers can range from 1 to 65535. Check your application's documentation for details on the service ports used.

Select the protocol **TCP**, **UDP**, or **Both**.

Priority Select the appropriate priority: **High**, **Medium (Recommend)**, **Normal**, or **Low**.

Click **Add** to save your changes. Your new entry will appear in the Summary list.

Online Games

Category	Online Games
	Game Age of Empires
	Priority Medium (Recommend)
	Add

QoS > Online Games

Game Select the appropriate game. If you select Add a New Game, follow the Add a New Game instructions.

Priority Select the appropriate priority: **High, Medium (Recommend), Normal, or Low.**

Click **Add** to save your changes. Your new entry will appear in the Summary list.

Add a New Game

Category	Online Games
Game	Add a New Game
Enter a Name	Linksys3
Port Range (Optional)	Both
Port Range (Optional)	Both
Port Range (Optional)	Both
Priority	Medium (Recommend)
Add	

QoS > Add a New Game

Enter a Name Enter any name to indicate the name of the entry.

Port Range Enter the port range that the application will be using. For example, if you want to allocate bandwidth for FTP, you can enter 21-21. If you need services for an application that uses from 1000 to 1250, you enter 1000-1250 as your settings. You can have up to three ranges to define for this bandwidth allocation. Port numbers can range from 1 to 65535. Check your application's documentation for details on the service ports used.

Select the protocol **TCP, UDP, or Both.**

Priority Select the appropriate priority: **High, Medium (Recommend), Normal, or Low.**

Click **Add** to save your changes. Your new entry will appear in the Summary list.

MAC Address

Category	My Current PC's MAC Address: AA:BB:CC:DD:EE:FF
Enter a Name	Linksys3
MAC Address	AA:BB:CC:DD:EE:FF
Priority	Medium (Recommend)
Add	

QoS > MAC Address

Enter a Name Enter a name for your device.

MAC Address Enter the MAC address of your device.

Priority Select the appropriate priority: **High, Medium (Recommend), Normal, or Low.**

Click **Add** to save your changes. Your new entry will appear in the Summary list.

Ethernet Port

Category	Ethernet Port
Ethernet	Ethernet Port 2
Priority	Medium (Recommend)
Add	

QoS > Ethernet Port

Ethernet Select the appropriate Ethernet port.

Priority Select the appropriate priority: **High, Medium (Recommend), Normal, or Low.**

Click **Add** to save your changes. Your new entry will appear in the Summary list.

Summary

This lists the QoS entries you have created for your applications and devices.

Priority This column displays the bandwidth priority of High, Medium, Normal, or Low.

Name This column displays the application, device, or port name.

Information This column displays the port range or MAC address entered for your entry. If a pre-configured application or game was selected, there will be no valid entry shown in this section.

Remove Click this button to remove an entry.

Edit Click this button to make changes.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Administration > Management

The *Administration > Management* screen allows the network's administrator to manage specific Router functions for access and security.



Administration > Management

Management

Router Access

To ensure the Router's security, you will be asked for your password when you access the Router's web-based utility. The default is **admin**.

Router Password Enter a new password for the Router.

Re-enter to confirm Enter the password again to confirm.

Web Access

Web Utility Access HTTP (HyperText Transport Protocol) is the communications protocol used to connect to servers on the World Wide Web. HTTPS uses SSL (Secured Socket Layer) to encrypt data transmitted for higher security. Select **HTTP** or **HTTPS**. **HTTP** is the default.

Web Utility Access via Wireless If you are using the Router in a public domain where you are giving wireless access to your guests, you can disable wireless access to the Router's web-based utility. You will only be able to access the utility via a wired connection if you disable the setting. Keep the default, **Enabled**, to allow wireless access to the utility, or select **Disabled** to block wireless access to the utility.

Remote Access

Remote Management To permit remote access of the Router, from outside the local network, select **Enabled**. Otherwise, keep the default, **Disabled**.

Web Utility Access HTTP (HyperText Transport Protocol) is the communications protocol used to connect to servers on the World Wide Web. HTTPS uses SSL (Secured Socket Layer) to encrypt data transmitted for higher security. Select **HTTP** or **HTTPS**. **HTTP** is the default.

Remote Upgrade If you want to be able to upgrade the Router remotely, from outside the local network, select **Enabled**. (You must have the Remote Management feature enabled as well.) Otherwise, keep the default, **Disabled**.

Allowed Remote IP Address If you want to be able to access the Router from any external IP address, select **Any IP Address**. If you want to specify an external IP address or range of IP addresses, then select the second option and complete the fields provided.

Remote Management Port Enter the port number that will be open to outside access.



NOTE: When you are in a remote location and wish to manage the Router, enter **http://<Internet_IP_address>:port** or **https://<Internet_IP_address>:port**, depending on whether you use HTTP or HTTPS. Enter the Router's specific Internet IP address in place of <Internet_IP_address>, and enter the Remote Management Port number in place of the word port.

UPnP

Universal Plug and Play (UPnP) allows Windows XP and Vista to automatically configure the Router for various Internet applications, such as gaming and videoconferencing.

UPnP If you want to use UPnP, keep the default, **Enabled**. Otherwise, select **Disabled**.

Allow Users to Configure Keep the default, **Enabled**, if you want to be able to make manual changes to the Router while using the UPnP feature. Otherwise, select **Disabled**.

Keep UPnP Configurations After System Reboot If you enable the Allow Users to Configure option, then this option will be available. Select **Enabled**, if you want to keep UPnP configuration settings after the Router reboots. Otherwise, keep the default, **Disabled**.

Allow Users to Disable Internet Access Select **Enabled**, if you want to be able to prohibit any and all Internet connections. Otherwise, keep the default, **Disabled**.

Multimedia Streaming

RTSP Support If you are experiencing issues with video-on-demand applications, select **Enabled** to improve multimedia transmissions. Using this option, the Router will establish channels with the Real Time Streaming

Protocol) RTSP server, which is located at the ISP. Otherwise, keep the default, **Disabled**.

IGMP

Internet Group Multicast Protocol (IGMP) is used to establish membership in a multicast group and is commonly used for multicast streaming applications. For example, you may have Internet Protocol Television (IPTV) with multiple setup boxes on the same local network. These setup boxes have different video streams running simultaneously, so you should use the IGMP feature of the Router.

Support IGMP Version Select the version you want to support, **IGMP v1**, **IGMP v2**, or **IGMP v3**. If you are not sure which version to select, keep the default, **IGMP v2**.

IGMP Proxy Keep the default, **Enabled**, if you want to allow multicast traffic through the Router for your multimedia application devices. Otherwise, select **Disabled**.

Immediate Leave Select **Enabled**, if you use IPTV applications and want to allow immediate channel swapping or flipping without lag or delays. Otherwise, keep the default, **Disabled**.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Administration > Log

The Router can keep logs of all traffic for your Internet connection.

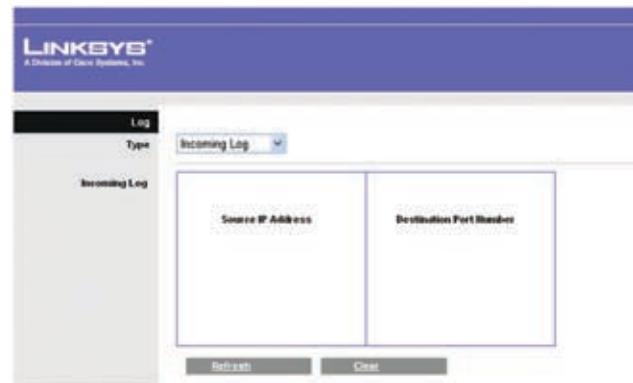


Administration > Log

Log

Log To disable the Log function, keep the default, **Disabled**. To monitor traffic between the network and the Internet, select **Enabled**. With logging enabled, you can choose to view temporary logs.

View Log To view the logs, click **View Log**.



Log > View Log

Log

- **Type** Select **Incoming Log**, **Outgoing Log**, **Security Log**, or **DHCP Client Log**.
- **<Type> Log** The Incoming Log will display a temporary log of the source IP addresses and destination port numbers for the incoming Internet traffic. The Outgoing Log will display a temporary log of the local IP addresses, destination URLs/IP addresses, and service/port numbers for the outgoing Internet traffic. The Security log will display the login information for the web-based utility. The DHCP Client Log will display the LAN DHCP server status information.

Click **Refresh** to update the log. Click **Clear** to clear all the information that is displayed.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Administration > Diagnostics

The diagnostic tests (Ping and Traceroute) allow you to check the connections of your network devices, including connection to the Internet.



Administration > Diagnostics

Diagnostics

Ping Test

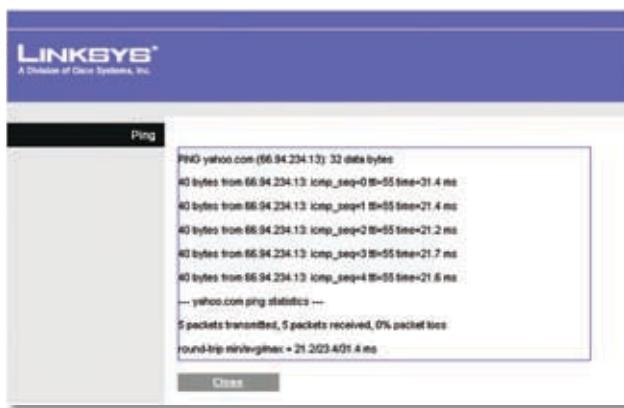
The Ping test checks the status of a connection.

IP or URL Address Enter the address of the PC whose connection you wish to test.

Packet Size Enter the packet size you want to use. The default is **32** bytes.

Times to Ping Enter many times you wish to test it.

Start to Ping To run the test, click this button. The *Ping Test* screen will show if the test was successful. Click **Close** to return to the *Diagnostics* screen.



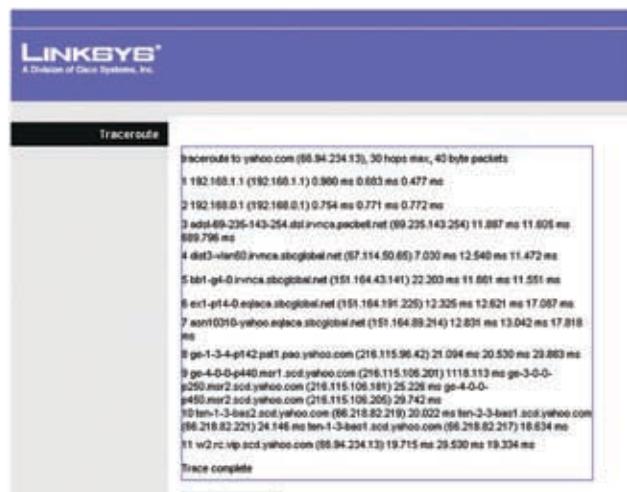
Diagnostics > Ping

Traceroute Test

The Traceroute test tests the performance of a connection.

IP or URL Address Enter the address of the PC whose connection you wish to test.

Start to Traceroute To run the test, click this button. The *Traceroute Test* screen will show if the test was successful. Click **Close** to return to the *Diagnostics* screen.



Diagnostics > Traceroute

Administration > Factory Defaults

The *Administration > Factory Defaults* screen allows you to restore the Router's configuration to its Router and/or voice factory default settings.



Administration > Factory Defaults



NOTE: Restoring factory defaults deletes custom settings. Note your custom settings before restoring the factory defaults.

Factory Defaults

Restore Router Factory Defaults To reset the Router settings to the default values, select **Yes**. Then click **Save Settings**. Any custom Router settings you have saved will be lost when the default settings are restored.

Restore Voice Factory Defaults To reset the voice settings to the default values, select **Yes**. Then click **Save Settings**. Any custom Voice settings you have saved will be lost when the default settings are restored.



NOTE: Restoring the voice defaults may require your login (the default user name and password are **admin**). If the defaults do not work, contact your ITSP for more information.

On the **Firmware Upgrade** screen, click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Administration > Firmware Upgrade

The *Firmware Upgrade* screen allows you to upgrade the Router's firmware. Do not upgrade the firmware unless you are experiencing problems with the Router or the new firmware has a feature you want to use.

If you want to upgrade the Router's firmware, then you may need a user name and password available only from your ISP or ITSP. Contact your ISP or ITSP for more information.

Username & Password

If you see the *Username & Password* screen, enter the User Name and Password provided by your ISP or ITSP. Then click **Save Settings**.



Administration > Username & Password



NOTE: The Router may lose the settings you have customized. Before you upgrade its firmware, use the *Config Management* screen to back up the Router's settings. Refer to the Administration > Config Management section for more information.

Firmware Upgrade

Before upgrading the firmware, download the Router's firmware upgrade file from the Linksys website, www.linksys.com. Then extract the file.



Administration > Firmware Upgrade

Please select a file to upgrade Click **Browse** and select the extracted firmware upgrade file.

Start to Upgrade After you have selected the appropriate file, click this button, and follow the on-screen instructions.

Administration > Config Management

The *Config Management* screen allows you to back up or restore the Router's settings using a configuration file.



Administration > Config Management

Backup Configuration

Backup To save the Router's settings in a configuration file, click this button and follow the on-screen instructions.

Restore Configuration

To use this option, you must have previously backed up its configuration settings.

Please select a file to restore Click the **Browse** button and select the Router's configuration file.

Restore To restore the Router's configuration settings, click this button and follow the on-screen instructions.

Status > Router

The *Router* screen displays information about the Router.



Status > Router

Router Information

Firmware Version The version number of the Router's current firmware is displayed.

Current Time The time set on the Router is displayed.

Internet MAC Address The Router's MAC address, as seen by your ISP, is displayed.

Router Name The name of the Router is displayed.

Host Name If required by your ISP, this was entered on the *Basic Setup* screen.

Domain Name If required by your ISP, this was entered on the *Basic Setup* screen.

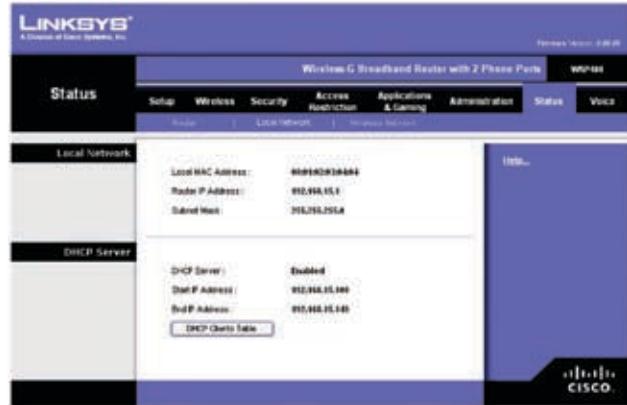
Internet Connection

This section shows the current network information. It varies depending on the Internet connection type selected on the *Basic Setup* screen.

Click **Refresh** to update the on-screen information.

Status > Local Network

The *Local Network* screen displays information about the local, wired network.



Status > Local Network

Local Network

Local MAC Address The MAC address of the Router's local, wired interface is displayed.

Router IP Address The Router's IP address, as it appears on your local network, is displayed.

Subnet Mask The Subnet Mask of the Router is displayed.

DHCP Server

DHCP Server The status of the Router's DHCP server function is displayed.

Start IP Address For the range of IP addresses used by devices on your local network, the starting IP address is displayed.

End IP Address For the range of IP addresses used by devices on your local network, the ending IP address is displayed.

DHCP Clients Table Click this button to view a list of computers that are using the Router as a DHCP server.

DHCP Client Table					
To Sort By: IP Address					
Client Name	IP Address	Interface	MAC Address	Expires Time	
wrg	192.168.1.100	LAN	00:0E:BC:EA:D1:81	1 day, 20:30:56	Delete
wrg	192.168.1.101	LAN	00:0E:9B:9A:39:82	20:44:50	Delete

DHCP Clients Table

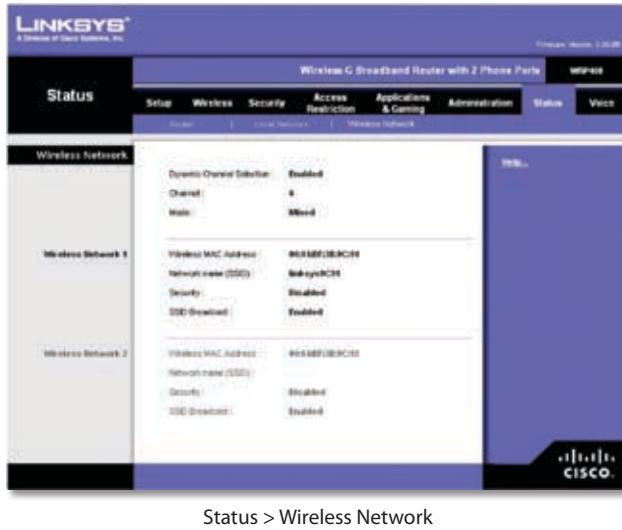
DHCP Client Table

The DHCP Client Table lists computers and other devices that have been assigned IP addresses by the Router. The list can be sorted by Client Name, IP Address, Interface, MAC Address, and Expires Time (how much time is left for the current IP address). To

remove a DHCP client, click **Delete**. To retrieve the most up-to-date information, click **Refresh**. To exit this screen and return to the *Local Network* screen, click **Close**.

Status > Wireless Network

The *Wireless Network* screen displays information about your wireless network(s).



Wireless Network

Dynamic Channel Selection The setting is displayed.

Channel The channel of the wireless network(s) is displayed.

Mode The wireless mode is displayed.

Wireless Network 1-2

Status information for each wireless network is displayed.

Wireless MAC Address The wireless MAC address of the Router's local, wireless interface is displayed.

Network Name (SSID) The network name, which is also called the SSID, is displayed.

Security The wireless security method is displayed.

SSID Broadcast The status of the SSID Broadcast feature is displayed.

Access to the Voice Screens

There are two levels of access, user and Admin Login. When you click the Voice tab, the *Info* screen is automatically displayed. If you set a User Password on the *System* screen, then you will be asked to enter it before the *Info* screen is displayed.

The Admin Login allows access to more advanced settings. To access administrative screens, click **Admin Login**, and

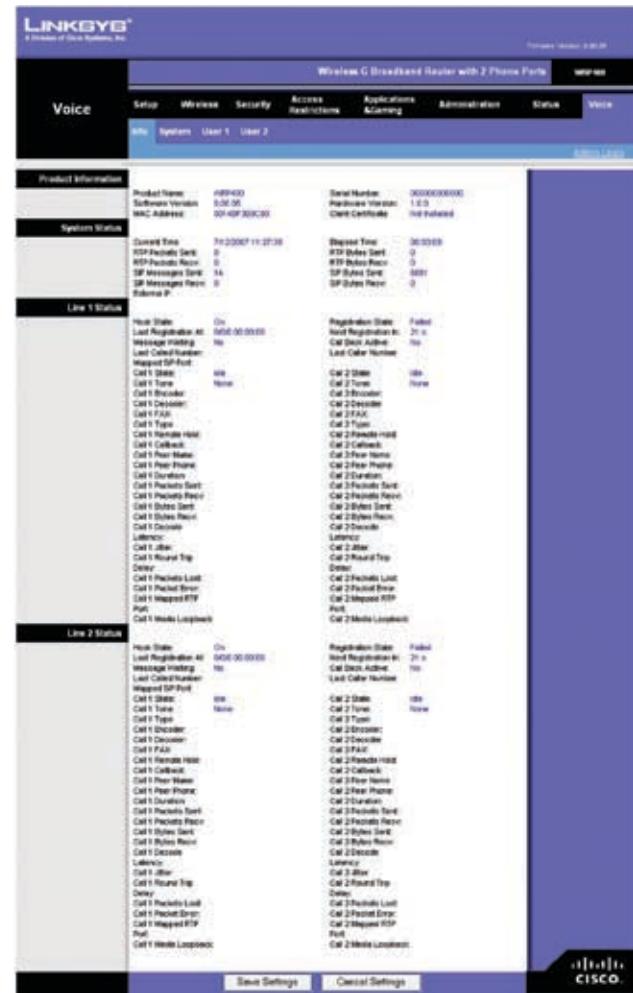
enter the user name and password provided by your ITSP. Contact your ITSP for more information. (The factory default Admin Login name and password are **admin**.)



NOTE: In most cases, you do not need to use the administrative screens. Contact your ITSP for more information.

Voice > Info

The *Info* screen displays Voice over Internet Protocol (VoIP) information about the Router.



Voice > Info

Product Information

Product Name The model number of the Router is displayed.

Serial Number The serial number of the Router is displayed.

Software Version The version number of the Router software is displayed.

Hardware Version The version number of the Router hardware is displayed.

MAC Address The MAC address of the Router is displayed.

Client Certificate The status of the client certificate, which indicates that the Router has been authorized by your ITSP, is displayed.

System Status

Current Time The current date and time of the Router are displayed.

Elapsed Time The amount of time elapsed since the last reboot of the Router is displayed.

RTP Packets Sent The number of RTP packets sent by the Router is displayed.

RTP Bytes Sent The number of RTP bytes sent by the Router is displayed.

RTP Packets Recv The number of RTP packets received by the Router is displayed.

RTP Bytes Recv The number of RTP bytes received by the Router is displayed.

SIP Messages Sent The number of SIP messages sent by the Router is displayed.

SIP Bytes Sent The number of SIP bytes sent by the Router is displayed.

SIP Messages Recv The number of SIP messages received by the Router is displayed.

SIP Bytes Recv The number of SIP bytes received by the Router is displayed.

External IP The external IP address used for NAT mapping is displayed.

Line 1/2 Status

Lines 1 and 2 have the same status information available.

Hook State The status of the Internet phone line's readiness is displayed. "On" indicates that it is ready for use, while "Off" indicates that it is in use.

Registration State The status of the line's registration with the ITSP is displayed.

Last Registration At The last date and time the line was registered are displayed.

Next Registration In The number of seconds until the next registration is displayed.

Message Waiting This indicates whether you have new voicemail waiting.

Call Back Active This indicates whether a call back request is in progress.

Last Called Number The last number called is displayed.

Last Caller Number The number of the last caller is displayed.

Mapped SIP Port The port number of the NAT mapped SIP port is displayed.

Calls 1 and 2 have the same status information available.

Call 1/2 State The status of the call is displayed.

Call 1/2 Tone The type of tone used by the call is displayed.

Call 1/2 Encoder The codec used for encoding is displayed.

Call 1/2 Decoder The codec used for decoding is displayed.

Call 1/2 FAX The status of the fax pass-through mode is displayed.

Call 1/2 Type The direction of the call is displayed.

Call 1/2 Remote Hold This indicates whether the far end has placed the call on hold.

Call 1/2 Callback This indicates whether the call was triggered by a call back request.

Call 1/2 Peer Name The name of the internal phone is displayed.

Call 1/2 Peer Phone The phone number of the internal phone is displayed.

Call 1/2 Duration The duration of the call is displayed.

Call 1/2 Packets Sent The number of packets sent is displayed.

Call 1/2 Packets Recv The number of packets received is displayed.

Call 1/2 Bytes Sent The number of bytes sent is displayed.

Call 1/2 Bytes Recv The number of bytes received is displayed.

Call 1/2 Decode Latency The number of milliseconds for decoder latency is displayed.

Call 1/2 Jitter The number of milliseconds for receiver jitter is displayed.

Call 1/2 Round Trip Delay The number of milliseconds for delay is displayed.

Call 1/2 Packets Lost The number of packets lost is displayed.

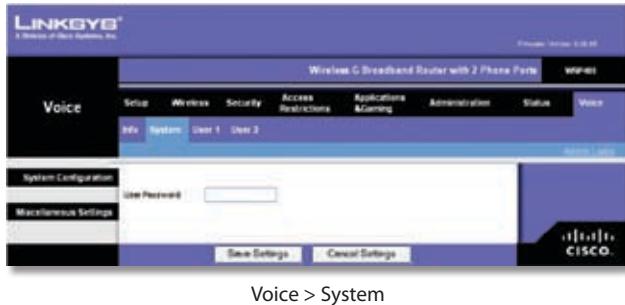
Call 1/2 Packet Error The number of invalid packets received is displayed.

Call 1/2 Mapped RTP Port The number of the NAT mapped RTP port is displayed.

Call 1/2 Media Loopback The Media Loopback feature allows the ITSP to test the quality of the connection to the Router. The status of the feature is displayed.

Voice > System

The **System** screen displays the User Password setting.



Voice > System

System Configuration

User Password Enter the password for user access to the **Voice** screens. (By default, there is no password.)

Miscellaneous Settings

No settings are displayed.

Click **Save Settings** to apply your change, or click **Cancel Changes** to cancel your change.

Voice > User 1/2

The **User 1** and **2** screens display similar settings. The **User 1** screen displays settings for users of phone line 1, and the **User 2** screen displays settings for users of phone line 2.



Voice > User 1

Call Forward Settings

Enter the call forwarding numbers you want to use.

Cfwd All Dest Enter the number for the Call Forward All Service feature (when you want to forward all calls).

Cfwd Busy Dest Enter the number for the Call Forward Busy feature (when the line is busy).

Cfwd No Ans Dest Enter the number for the Call Forward No Answer feature (when the line is not answered).

Cfwd No Ans Delay Enter the number of seconds to wait before the Call Forward No Answer feature is triggered. The default is **20**.

Selective Call Forward Settings

Enter the caller numbers that will be forwarded to specific phone numbers.

Cfwd Sel1-8 Caller Enter the caller number pattern to trigger the Call Forward Selective (1-8) feature.

Cfwd Sel1-8 Dest Enter the forward number for the Call Forward Selective (1-8) feature.

Cfwd Last Caller Enter the caller number that is actively forwarded to the Cfwd Last Dest number when the Call Forward Last activation code is used.

Cfwd Last Dest Enter the forward number for the Cfwd Last Caller feature.

Block Last Caller Enter the ID of the caller blocked via the Block Last Caller service.

Accept Last Caller Enter the ID of the caller accepted via the Accept Last Caller service.

Speed Dial Settings

Speed Dial 2-9 Enter the phone number for each Speed Dial setting.

Supplementary Service Settings

CW Setting Select whether you want to use the Call Waiting feature for all calls, **yes** or **no**. The default is **yes**.

Block CID Setting Select whether you want to block Caller ID for all calls, **yes** or **no**. The default is **no**.

Block ANC Setting Select whether you want to block anonymous calls, **yes** or **no**. The default is **no**.

DND Setting Select whether you want to use the Do Not Disturb (DND) feature, **yes** or **no**. The default is **no**.

CID Setting Select whether you want to enable Caller ID generation, **yes** or **no**. The default is **yes**.

CWCID Setting Select whether you want to enable Caller ID for Call Waiting, **yes** or **no**. The default is **yes**.

Dist Ring Setting Select whether you want to use the Distinctive Ring feature, **yes** or **no**. The default is **yes**.

Message Waiting Select whether you want to use the Message Waiting feature, **yes** or **no**. The default is **no**.

Distinctive Ring Settings

Ring1-8 Caller Enter the caller number pattern to play Distinctive Ring/Call Waiting Tone (1-8).

Ring Settings

Default Ring Select the default ringing pattern for all callers. The default is **1**.

Default CWT Select the default CWT pattern for all callers. The default is **1**.

Hold Reminder Ring Select the ring pattern that will remind you of a call on hold when the phone is on-hook. The default is **8**.

Call Back Ring Select the ring pattern for call back notification. The default is **7**.

Cfwd Ring Splash Len Enter the duration of the ring splash when a call is forwarded. The range is 0 to 10.0 seconds. The default is **0**.

Cblk Ring Splash Len Enter the duration of the ring splash when a call is blocked. The range is 0 to 10.0 seconds. The default is **0**.

VMWI Ring Splash Len Enter the duration of the ring splash when new messages arrive before the VoiceMail Waiting Indication (VMWI) signal is applied. The range is 0 to 10.0 seconds. The default is **0**.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Voice > Admin Login

The Admin Login allows access to more advanced settings. To access administrative screens, click **Admin Login**, and enter the user name and password provided by your ITSP. Contact your ITSP for more information. (The factory default Admin Login name and password are **admin**.)



NOTE: In most cases, you do not need to use the administrative screens. Contact your ITSP for more information.

Chapter 4:

Interactive Voice Response Menu

Overview

This chapter explains how to use the Interactive Voice Response (IVR) Menu to configure the Router's network settings. Use your telephone's keypad to enter your commands and select choices, and the Router will use voice responses.

To access the IVR Menu:

1. Use a telephone connected to the Phone 1 or 2 port of the Router. (You can only access the IVR Menu through an analog telephone, not any of the Internet phones.)
2. Press **** (in other words, press the star key four times).
3. Wait until you hear the Router's response, "Configuration menu. Please enter the option followed by the # (pound) key, or hang up to exit".

Menu Commands

Refer to the following table that lists actions, commands, menu choices, and descriptions. After you select an option, press the # (pound) key. To exit the menu, hang up the telephone.

If the menu is inactive for more than one minute, the Router will time out. To re-enter the menu, press ****.

Action	Command	Choices	Description
Enter IVR Menu	****		Use this command to enter the IVR Menu. Ignore Special Information Tones (SITs) or other tones until you hear, "Configuration menu. Please enter the option followed by the # (pound) key, or hang up to exit."
Check DHCP	100		The IVR announces whether DHCP is enabled or disabled.
Check IP Address	110		The IVR announces the current IP address of the Router.
Check Subnet Mask	120		The IVR announces the current subnet mask of the Router.
Check Static Gateway IP Address	130		The IVR announces the current gateway IP address of the Router.
Check MAC Address	140		The IVR announces the MAC address of the Router in hexadecimal string format.
Check Firmware Version	150		The IVR announces the version number of the firmware running on the Router.
Factory Reset of the Router Warning: All custom settings will be lost, including the network and service provider data.	73738	Confirm - Press 1. Cancel - Press * (star).	After the Router requests confirmation, press 1 to confirm. After you hear, "Option successful", hang up the phone. The Router will reboot, and all settings will be reset to their defaults.

Appendix A: Troubleshooting

Your computer cannot connect to the Internet.

Follow these instructions until your computer can connect to the Internet:

- Make sure that the Router is powered on. The Power LED should be green and not flashing.
- If the Power LED is flashing, then power off all of your network devices, including the modem, Router, and computers. Wait 30 seconds. Then power on each device in the following order:
 1. Cable or DSL modem
 2. Router
 3. Computer
- Check the cable connections. The computer should be connected to one of the ports numbered 1-4 on the Router, and the modem must be connected to the Internet port on the Router.

You do not hear a dial tone, and the Phone 1 or 2 LED is not lit.

Follow these instructions until your problem is solved:

- Make sure the telephone is plugged into the appropriate port, Phone 1 or 2.
- Disconnect and re-connect the RJ-11 telephone cable between the Router and telephone.
- Make sure your telephone is set to its tone setting (not pulse).
- Make sure your network has an active Internet connection. Try to access the Internet, and check to see if the Router's Internet LED is lit. If you do not have a connection, then power off all of your network devices, including the modem, Router, and computers. Wait 30 seconds. Then power on each device in the following order:
 1. Cable or DSL modem
 2. Router
 3. Computers and other devices
- Verify your account information and confirm that the phone line is registered with your Internet Telephony Service Provider (ITSP).

When you are on an Internet phone call, words are dropped intermittently.

Follow these instructions until your problem is solved:

- If you are using the Router's wireless function and a cordless phone, they may be using the same frequency and may interfere with each other. Move the cordless phone farther away from the Router.
- There may be heavy network activity, particularly if you are running a server or using a file sharing program. Try to limit network or Internet activity during Internet phone calls. For example, if you are running a file sharing program, files may be uploaded in the background even though you are not downloading any files, so make sure you exit the program before making Internet phone calls.
- There may not be enough bandwidth available for your Internet phone call. You may want to test your bandwidth using one of the bandwidth tests available online. If necessary, access your Internet phone service account and reduce the bandwidth requirements for your service. For more information, refer to the website of your ITSP.

The modem does not have an Ethernet port.

The modem is a dial-up modem for traditional dial-up service. To use the Router, you need a cable/DSL modem and high-speed Internet connection.

You cannot use the DSL service to connect manually to the Internet.

After you have installed the Router, it will automatically connect to your Internet Service Provider (ISP) or Internet Telephony Service Provider (ITSP), so you no longer need to connect manually.

The DSL telephone line does not fit into the Router's Internet port.

The Router does not replace your modem. You still need your DSL modem in order to use the Router. Connect the telephone line to the DSL modem, insert the setup CD into your computer, and then follow the on-screen instructions.

When you double-click the web browser, you are prompted for a username and password. If you want to get rid of the prompt, follow these instructions.

Launch the web browser and perform the following steps (these steps are specific to Internet Explorer but are similar for other browsers):

1. Select **Tools > Internet Options**.
2. Click the **Connections** tab.
3. Select **Never dial a connection**.
4. Click **OK**.

The Router does not have a coaxial port for the cable connection.

The Router does not replace your modem. You still need your cable modem in order to use the Router. Connect your cable connection to the cable modem, insert the setup CD into your computer, and then follow the on-screen instructions.

The computer cannot connect wirelessly to the network.

Make sure the wireless network name or SSID is the same on both the computer and the Router. If you have enabled wireless security, then make sure the same security method and key are used by both the computer and the Router.

You need to modify the settings on the Router.

To access the web-based utility, follow these instructions:

1. Launch the web browser on your computer, and enter the Router's default IP address, **192.168.15.1**, in the Address field. Then press **Enter**.



NOTE: If you place the Router behind a primary router with the IP address of 192.168.15.1, then the Router will automatically assume a new default IP address, **192.168.16.1**.

2. A login screen appears. The first time you open the web-based utility, use the default user name and password, **admin**. (You can set a new password from the Administration tab's *Management* screen.) Then click **OK**.
3. Click the appropriate tab to change the settings.



WEB: If your questions are not addressed here, refer to the Linksys website, www.linksys.com.

Appendix B: Specifications

Model WRP400

* Note: Many specifications are programmable within a defined range or list of options. Please see the SPA ATA Administration Guide for details. The target configuration profile is uploaded to the WRP400 at the time of provisioning.

Data Networking MAC Address (IEEE 802.3)

IPv4 - Internet Protocol v4 (RFC 791)

Upgradeable to v6 (RFC 1883)

ARP - Address Resolution Protocol

DNS - A Record (RFC 1706),

SRV Record (RFC 2782)

DHCP Client - Dynamic Host Configuration Protocol (RFC 2131)

DHCP Server - Dynamic Host Configuration Protocol (RFC 2131)

PPPoE Client - Point to Point Protocol over Ethernet (RFC 2516)

ICMP - Internet Control Message Protocol (RFC792)

TCP - Transmission Control Protocol (RFC793)

UDP - User Datagram Protocol (RFC768)

RTP - Real Time Protocol (RFC 1889) (RFC 1890)

RTCP - Real Time Control Protocol (RFC 1889)

TFTP

RTSP

HTTP

NAT (RFC 1631)

Reverse NAT

SDP

SNTP - Simple Network Time Protocol (RFC 2030)

Type of Service - TOS (RFC 791/1349)

QoS - Packet Prioritization by Type

Router or Bridge Mode of Operation

MAC Address Cloning

Port Forwarding

IP Multicast / IGMP v1, v2, v3/
IGMP Proxy

Voice Features

Voice Algorithms

G.711 (a-law and μ-law)

G.726 (16/24/32/40 kbps)

G.729 AB

G.723.1 (6.3 kbps, 5.3 kbps)

Call Forwarding:

No Answer/Busy/Unconditional

Support for Two Simultaneous Calls

SIP TLS (Transport Layer Security)

Call Transfer

Call Waiting/Hold/Retrieve

Three-way Conferencing

Call ID Number & Name (Primary Line & On Call Waiting)

Call-ID Block (Prevent Send out the Caller ID)

Anonymous Call Blocking

Distinctive Ringing

Do not Disturb Setting

Repeat Dialing on Busy

Call Return

Emergency Call Support

Dial Plan

Speed Dial

Auto-Attendant

Multi-Room Meet-Me Conference

In-Band/ SIP-INFO DTMF Translation

Provisioning,
Administration,
& Maintenance

Web Browser Administration & Configuration via Integral Web Server

Telephone Key Pad Configuration with Interactive Voice Prompts

Automated Provisioning & Upgrade via HTTP, TFTP, HTTPS

Asynchronous Notification of Upgrade Availability via NOTIFY

Non-Intrusive, In-Service Upgrades

Report Generation & Event Logging

Stats in BYE Message

Syslog & Debug Server Records

Per Line and Purpose Configurable Syslog and Debug Options

Physical Interfaces	4 100Base-T RJ-45 Ethernet Port (IEEE 802.3)	Indicator Lights/LEDs	Power, Ethernet, Wireless, Phone 1, Phone 2, Internet, WPS
	2 RJ-11 FXS Phone Ports - For Analog Circuit Telephone Device	Documentation	Quick Installation and User Guide are Downloaded from www.linksys.com
	USB 2.0 (reserved for future use via firmware upgrade)		Linksys SPA ATA Administration Guide - Service Providers Only
Buttons	Reset, WPS		Linksys Provisioning Guide - Service Providers Only
Subscriber Line Interface Circuit (SLIC)	<p>Ring Voltage: 40-90 Vpk</p> <p>Ring Frequency: 20 to 25Hz</p> <p>Ring Waveform: Trapezoidal with 1.2 to 1.6 Crest Factor</p> <p>Maximum Ringer Load: 3 REN</p> <p>On-Hook/Off-Hook Characteristics:</p> <ul style="list-style-type: none"> On-Hook Voltage (Tip/Ring): - 46 to -56V Off-Hook Current: 18 to 25mA Terminating Impedance: <ul style="list-style-type: none"> 600 ohm Resistive 270 ohm + 750ohm//150nF Complex Impedance <p>Frequency Response: 300 – 3400Hz</p>	Security Features	<p>Password-Protected Configuration for Web Access</p> <p>Denial of Service (DoS) Prevention</p> <p>URL Filtering, and Keyword, Java, ActiveX, Proxy, Cookie Blocking</p> <p>VPN Passthrough for IPSec, PPTP, and L2TP Protocols</p> <p>64, 128 bits WEP with Passphrase WEP Key Generation</p> <p>SSID Broadcast Disable</p> <p>Access Restriction by MAC and IP Addresses</p> <p>Wi-Fi Protected Setup (WPS), Wi-Fi Protected Access™ (WPA), Wi-Fi Protected Access™ 2 (WPA2)</p>
Regulatory Compliance	FCC (Part 15 Class B), CE, ICES-003, RoHS	Security Key Bits	64, 128
Number of Antennas	1	Environmental	
Connector type	Fixed	Dimensions	5.51" x 5.51" x 1.06" (140 x 140 x 27 mm)
Detachable (y/n)	No	Weight	10.05 oz (285 g)
RF Pwr (EIRP) in dBm	(Average, not Including Antenna) 802.11g: Typ. 18 dBm @ Normal Temp Range (with PA) 802.11b: Typ: 20 dBm @ Normal Temp Range (with PA)	Power	External, Switching, 5VDC, 2A
Antenna Gain in dBi	2 dBi	Certification	FCC, CE, CB, IC, UL, Wi-Fi (802.11b + WPA2, 802.11g + WPA2, WMM)
UPnP able/cert	Yes	Operating Temp.	0 to 40°C (32 to 104°F)
Power Supply	Switching Type (100-240V) Automatic DC Input Voltage: +5 VDC at 2.0 A Max. Power Consumption: 7.9 watts (Average) Power Adapter: 100-240V - 50-60Hz (26-34VA) AC Input, 1.8 m Cord	Storage Temp.	-20 to 70°C (-4 to 158°F)
		Operating Humidity	10 to 85%, Relative Humidity, Noncondensing
		Storage Humidity	5 to 90% Noncondensing

Appendix C: Warranty Information

Contact your service provider if the warranty support issues are to be handled by them as per your service agreements.

Limited Warranty

Linksys warrants to You that, for a period of one year (the "Warranty Period"), your Linksys Product will be substantially free of defects in materials and workmanship under normal use. Your exclusive remedy and Linksys' entire liability under this warranty will be for Linksys at its option to repair or replace the Product or refund Your purchase price less any rebates. This limited warranty extends only to the original purchaser.

If the Product proves defective during the Warranty Period call Linksys Technical Support in order to obtain a Return Authorization Number, if applicable. BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING. If You are requested to return the Product, mark the Return Authorization Number clearly on the outside of the package and include a copy of your original proof of purchase. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. You are responsible for shipping defective Products to Linksys. Linksys pays for UPS Ground shipping from Linksys back to You only. Customers located outside of the United States of America and Canada are responsible for all shipping and handling charges.

ALL IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE DURATION OF THE WARRANTY PERIOD. ALL OTHER EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF NON-INFRINGEMENT, ARE DISCLAIMED. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to You. This warranty gives You specific legal rights, and You may also have other rights which vary by jurisdiction.

This warranty does not apply if the Product (a) has been altered, except by Linksys, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Linksys, or (c) has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident. In addition, due to the continual development of new techniques for intruding upon and attacking networks, Linksys does not warrant that the Product will be free of vulnerability to intrusion or attack.

TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL LINKSYS BE LIABLE FOR ANY LOST DATA, REVENUE OR PROFIT, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, REGARDLESS OF THE THEORY OF LIABILITY (INCLUDING NEGLIGENCE), ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE THE PRODUCT (INCLUDING ANY SOFTWARE), EVEN IF LINKSYS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL LINKSYS' LIABILITY EXCEED THE AMOUNT PAID BY YOU FOR THE PRODUCT. The foregoing limitations will apply even if any warranty or remedy provided under this Agreement fails of its essential purpose. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to You.

Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623.

Appendix D:

Regulatory Information

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This product has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. IEEE 802.11b or 802.11g operation of this product in the USA is firmware-limited to channels 1 through 11.

Safety Notices and Information

- **Caution:** To reduce the risk of fire, use only No.26 AWG or larger telecommunication line cord.

- Do not use this product near water, for example, in a wet basement or near a swimming pool.
- Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.



WARNING: This product contains lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling.



WARNING: This equipment will be inoperable when main power fails.



WARNING: Many Internet phone service providers do not support calls to emergency service numbers (000 in Australia or 111 in New Zealand). An alternative phone should be used to make emergency calls.



WARNING: To ensure compliance with exposure limits to radiofrequency fields, the antenna of the WRP400 should be no closer than 20 cm from the body during use.

Industry Canada Statement

This Class B digital apparatus complies with Canadian ICES-003 and RSS210.

Operation is subject to the following two conditions:

1. This device may not cause interference and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the EIRP is not more than required for successful communication.

Industry Canada Radiation Exposure Statement

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Avis d'Industrie Canada

Cet appareil numérique de la classe B est conforme aux normes NMB-003 et RSS210 du Canada.

L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes :

1. il ne doit pas produire de brouillage et
2. il doit accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

Afin de réduire le risque d'interférence aux autres utilisateurs, le type d'antenne et son gain doivent être choisis de façon à ce que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne soit pas supérieure au niveau requis pour obtenir une communication satisfaisante.

Avis d'Industrie Canada concernant l'exposition aux radiofréquences :

Ce matériel est conforme aux limites établies par IC en matière d'exposition aux radiofréquences dans un environnement non contrôlé. Ce matériel doit être installé et utilisé à une distance d'au moins 20 cm entre l'antenne et le corps de l'utilisateur.

L'émetteur ne doit pas être placé près d'une autre antenne ou d'un autre émetteur, ou fonctionner avec une autre antenne ou un autre émetteur.

Wireless Disclaimer

The maximum performance for wireless is derived from IEEE Standard 802.11 specifications. Actual performance can vary, including lower wireless network capacity, data throughput rate, range and coverage. Performance depends on many factors, conditions and variables, including distance from the access point, volume of network traffic, building materials and construction, operating system used, mix of wireless products used, interference and other adverse conditions.

Avis de non-responsabilité concernant les appareils sans fil

Les performances maximales pour les réseaux sans fil sont tirées des spécifications de la norme IEEE 802.11. Les performances réelles peuvent varier, notamment en fonction de la capacité du réseau sans fil, du débit de la transmission de données, de la portée et de la couverture. Les performances dépendent de facteurs, conditions et variables multiples, en particulier de la distance par rapport au point d'accès, du volume du trafic réseau, des matériaux utilisés dans le bâtiment et du type de construction, du système d'exploitation et de la combinaison de produits sans fil utilisés, des interférences et de toute autre condition défavorable.

Telepermit Statement

The cabling between the phone port and the phone shall not exceed 100 metres.

Declaration of Conformity with Regard to EU Directive 1999/5/EC (R&TTE Directive)

Compliance Information for 2,4-GHz and 5-GHz Wireless Products Relevant to the EU and Other Countries Following the EU Directive 1999/5/EC (R&TTE Directive)

Български [Bulgarian]	Това оборудване отговаря на съществените изисквания и приложими клаузи на Директива 1999/5/ЕС.
Česky [Czech]:	Toto zařízení je v souladu se základními požadavky a ostatními odpovídajícími ustanoveními Směrnice 1999/5/EU.
Dansk [Danish]:	Dette udstyr er i overensstemmelse med de væsentlige krav og andre relevante bestemmelser i Direktiv 1999/5/EU.
Deutsch [German]:	Dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 1999/5/EU.
Eesti [Estonian]:	See seade vastab direktiivi 1999/5/EÜ olulistele nõuetele ja teistele asjakohastele sätetele.
English:	This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]:	Este equipo cumple con los requisitos esenciales así como con otras disposiciones de la Directiva 1999/5/CE.
Ελληνική [Greek]:	Αυτός ο εξοπλισμός είναι σε συμμόρφωση με τις ουσιώδεις απαιτήσεις και άλλες σχετικές διατάξεις της Οδηγίας 1999/5/ΕΚ.
Français [French]:	Cet appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la Directive 1999/5/EC.
Íslenska [Icelandic]:	Þetta tæki er samkvæmt grunnkröfum og öðrum viðeigandi ákvæðum Tilskipunar 1999/5/EC.
Italiano [Italian]:	Questo apparato è conforme ai requisiti essenziali ed agli altri principi sanciti dalla Direttiva 1999/5/CE.
Latviski [Latvian]:	Šī iekārta atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]:	Šis įrenginys tenkina 1999/5/EB Direktyvos esminius reikalavimus ir kitas šios direktyvos nuostatas.

Nederlands [Dutch]:	Dit apparaat voldoet aan de essentiële eisen en andere van toepassing zijnde bepalingen van de Richtlijn 1999/5/EC.
Malta [Maltese]:	Dan l-apparat huwa konformi mal-htiġiet esenzjalji u l-provedimenti l-oħra rilevanti tad-Direttiva 1999/5/EC.
Magyar [Hungarian]:	Ez a készülék teljesíti az alapvető követelményeket és más 1999/5/EK irányelvben meghatározott vonatkozó rendelkezéseket.
Norsk [Norwegian]:	Dette utstyret er i samsvar med de grunnleggende krav og andre relevante bestemmelser i EU-direktiv 1999/5/EU.
Polski [Polish]:	Urządzenie jest zgodne z ogólnymi wymaganiami oraz szczególnymi warunkami określonymi Dyrektywą UE: 1999/5/EC.
Português [Portuguese]:	Este equipamento está em conformidade com os requisitos essenciais e outras provisões relevantes da Directiva 1999/5/EC.
Română [Romanian]:	Acest echipament este în conformitate cu cerințele esențiale și cu alte prevederi relevante ale Directivei 1999/5/EC.
Slovensko [Slovenian]:	Ta naprava je skladna z bistvenimi zahtevami in ostalimi relevantnimi pogoji Direktive 1999/5/EC.
Slovensky [Slovak]:	Toto zariadenie je v zhode so základnými požiadavkamiainýmipríslušnýminariadeniami direktív: 1999/5/EC.
Suomi [Finnish]:	Tämä laite täyttää direktiivin 1999/5/EY olennaiset vaatimukset ja on siinä asetettujen muiden laitetta koskevien määräysten mukainen.
Svenska [Swedish]:	Denna utrustning är i överensstämmelse med de väsentliga kraven och andra relevanta bestämmelser i Direktiv 1999/5/EC.

For all products, the Declaration of Conformity (DoC) is available through one or more of these options:

- A pdf file is included on the product's CD.
- A print copy is included with the product.
- A pdf file is available on the product's webpage. Visit www.linksys.com/international and select your country or region. Then select your product.

If you need any other technical documentation, see the "Technical Documents on www.linksys.com/international" section, as shown later in this appendix.

The following standards were applied during the assessment of the product against the requirements of the Directive 1999/5/EC:

- Radio: EN 300 328 and/or EN 301 893 as applicable
- EMC: EN 301 489-1, EN 301 489-17
- Safety: EN 60950 and either EN 50385 or EN 50371

Dynamic Frequency Selection (DFS) and Transmit Power Control (TPC) are required for operation in the 5 GHz band.

DFS: The equipment meets the DFS requirements as defined in ETSI EN 301 893. This feature is required by the regulations to avoid interference with Radio Location Services (radars).

TPC: For operation in the 5 GHz band, the maximum power level is 3 dB or more below the applicable limit. As such, TPC is not required.

CE Marking

For the Linksys Wireless-N, -G, -B, and/or -A products, the following CE mark, notified body number (where applicable), and class 2 identifier are added to the equipment.

!

or

!

or

!

or

!

Check the CE label on the product to find out which notified body was involved during the assessment.

National Restrictions

This product may be used in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

Ce produit peut être utilisé dans tous les pays de l'UE (et dans tous les pays ayant transposés la directive 1999/5/CE) sans aucune limitation, excepté pour les pays mentionnés ci-dessous:

Questo prodotto è utilizzabile in tutte i paesi EU (ed in tutti gli altri paesi che seguono le direttive EU 1999/5/EC) senza nessuna limitazione, eccetto per i paesi menzionati di seguito:

Das Produkt kann in allen EU Staaten ohne Einschränkungen eingesetzt werden (sowie in anderen Staaten die der EU Direktive 1999/5/CE folgen) mit Ausnahme der folgenden aufgeführten Staaten:

In the majority of the EU and other European countries, the 2,4- and 5-GHz bands have been made available for the use of wireless local area networks (LANs). The table labeled "Overview of Regulatory Requirements for Wireless LANs" provides an overview of the regulatory requirements applicable for the 2,4- and 5-GHz bands.

Later in this document you will find an overview of countries in which additional restrictions or requirements or both are applicable.

The requirements for any country may evolve. Linksys recommends that you check with the local authorities for the latest status of their national regulations for both the 2,4- and 5-GHz wireless LANs.

Overview of Regulatory Requirements for Wireless LANs

Frequency Band (MHz)	Max Power Level (EIRP) (mW)	Indoor ONLY	Indoor & Outdoor
2400-2483.5	100		X
5150-5350 [†]	200	X	
5470-5725 [†]	1000		X

[†]Dynamic Frequency Selection and Transmit Power Control are required in the frequency ranges of 5250-5350 MHz and 5470-5725 MHz.

The following countries have restrictions and/or requirements in addition to those given in the table labeled "Overview of Regulatory Requirements for Wireless LANs":

Denmark

In Denmark, the band 5150 - 5350 MHz is also allowed for outdoor usage.

I Danmark må frekvensbåndet 5150 - 5350 også anvendes udendørs.

France

For 2,4 GHz, the product should not be used outdoors in the band 2454 - 2483,5 MHz. There are no restrictions when used in other parts of the 2,4 GHz band when used indoors. Check <http://www.arcep.fr/> for more details.

Pour la bande 2,4 GHz, l'équipement ne doit pas être utilisé en extérieur dans la bande 2454 - 2483,5 MHz. Il n'y a pas de restrictions pour des utilisations en intérieur dans d'autres parties de la bande 2,4GHz. Consultez <http://www.arcep.fr/> pour de plus amples détails.

Applicable Power Levels in France

Location	Frequency Range (MHz)	Power (EIRP)
Indoor (No restrictions)	2400-2483.5	100 mW (20 dBm)
Outdoor	2400-2454 2454-2483.5	100 mW (20 dBm) 10 mW (10 dBm)

Italy

This product meets the National Radio Interface and the requirements specified in the National Frequency Allocation Table for Italy. Unless this 2,4-GHz wireless LAN product is operating within the boundaries of the owner's property, its use requires a "general authorization". Please check <http://www.comunicazioni.it/it/> for more details.

Questo prodotto è conforme alla specifiche di Interfaccia Radio Nazionali e rispetta il Piano Nazionale di ripartizione delle frequenze in Italia. Se non viene installato all'interno del proprio fondo, l'utilizzo di prodotti Wireless LAN a 2,4 GHz richiede una "Autorizzazione Generale". Consultare <http://www.comunicazioni.it/it/> per maggiori dettagli.

Latvia

The outdoor usage of the 2,4 GHz band requires an authorization from the Electronic Communications Office. Please check <http://www.esd.lv> for more details.

2,4 GHz frekveču joslas izmantošanai ārpus telpām nepieciešama atļauja no Elektronisko sakaru direkcijas. Vairāk informācijas: <http://www.esd.lv>.

Notes:

1. Although Norway, Switzerland and Liechtenstein are not EU member states, the EU Directive 1999/5/EC has also been implemented in those countries.
2. The regulatory limits for maximum output power are specified in EIRP. The EIRP level of a device can be calculated by adding the gain of the antenna used (specified in dBi) to the output power available at the connector (specified in dBm).

Product Usage Restrictions

This product is designed for indoor usage only. Outdoor usage is not recommended, unless otherwise noted.

2,4 GHz Restrictions

This product is designed for use with the standard, integral or dedicated (external) antenna(s) that is/are shipped together with the equipment. However, some applications may require the antenna(s), if removable, to be separated from the product and installed remotely from the device by using extension cables. For these applications, Linksys offers an R-SMA extension cable (AC9SMA) and an R-TNC extension cable (AC9TNC). Both of these cables are 9 meters long and have a cable loss (attenuation) of 5 dB. To compensate for the attenuation, Linksys also offers higher gain antennas, the HGA7S (with R-SMA connector) and HGA7T (with R-TNC connector). These antennas have a gain of 7 dBi and may only be used with either the R-SMA or R-TNC extension cable.

Combinations of extension cables and antennas resulting in a radiated power level exceeding 100 mW EIRP are illegal.

Third-Party Software or Firmware

The use of software or firmware not supported/provided by Linksys may result that the equipment is no longer compliant with the regulatory requirements.

Technical Documents on www.linksys.com/international

Follow these steps to access technical documents:

1. Enter <http://www.linksys.com/international> in your web browser.
2. Select the country or region in which you live.
3. Click the **Products** tab.
4. Select the appropriate product category.
5. Select the product sub-category, if necessary.
6. Select the product.
7. Select the type of documentation you want from the More Information section. The document will open in PDF format if you have Adobe Acrobat installed on your computer.



NOTE: If you have questions regarding the compliance of this product or you cannot find the information you need, please contact your local sales office or visit www.linksys.com/international

User Information for Consumer Products Covered by EU Directive 2002/96/EC on Waste Electric and Electronic Equipment (WEEE)

This document contains important information for users with regards to the proper disposal and recycling of Linksys products. Consumers are required to comply with this notice for all electronic products bearing the following symbol:



English - Environmental Information for Customers in the European Union

European Directive 2002/96/EC requires that the equipment bearing this symbol  on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your old equipment, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

Български (Bulgarian) - Информация относно опазването на околната среда за потребители в Европейския съюз

Европейска директива 2002/96/ЕС изисква уредите, носещи този символ  върху изделието и/или опаковката му, да не се изхвърлят с несортирани битови отпадъци. Символът обозначава, че изделието трябва да се изхвърля отделно от сметосябирането на обикновените битови отпадъци. Ваша е отговорността този и другите електрически и електронни уреди да се изхвърлят в предварително определени от държавните или общински органи специализирани пунктове за събиране. Правилното изхвърляне и рециклиране ще спомогнат да се предотвратят евентуални вредни за околната среда и здравето на населението последствия. За по-подробна информация относно изхвърлянето на вашите стари уреди се обърнете към местните власти, службите за сметосябиране или магазина, от който сте закупили уреда.

Čeština (Czech) - Informace o ochraně životního prostředí pro zákazníky v zemích Evropské unie

Evropská směrnice 2002/96/ES zakazuje, aby zařízení označené tímto symbolem  na produktu anebo na obalu bylo likvidováno s netříděným komunálním odpadem. Tento symbol udává, že daný produkt musí být likvidován odděleně od běžného komunálního odpadu. Odpovídáte za likvidaci tohoto produktu a dalších elektrických a elektronických zařízení prostřednictvím určených sběrných míst stanovených vládou nebo místními úřady. Správná likvidace a recyklace pomáhá předcházet potenciálním negativním dopadům na životní prostředí a lidské zdraví. Podrobnější informace o likvidaci starého vybavení si laskavě vyžádejte od místních úřadů, podniku zabývajícího se likvidací komunálních odpadů nebo obchodu, kde jste produkt zakoupili.

Dansk (Danish) - Miljøinformation for kunder i EU

EU-direktiv 2002/96/EF kræver, at udstyr der bærer dette symbol  på produktet og/eller emballagen ikke må bortskaffes som usorteret kommunalt affald. Symbolbetyr, at dette produkt skal bortskaffes adskilt fra det almindelige husholdningsaffald. Det er dit ansvar at bortskaffe dette og andet elektrisk og elektronisk udstyr via bestemte indsamlingssteder udpeget af staten eller de lokale myndigheder. Korrekt bortskaffelse og genvinding vil hjælpe med til at undgå mulige skader for miljøet og menneskers sundhed. Kontakt venligst de lokale myndigheder, renovationstjenesten eller den butik, hvor du har købt produktet, angående mere detaljeret information om bortskaffelse af dit gamle udstyr.

Deutsch (German) - Umweltinformation für Kunden innerhalb der Europäischen Union

Die Europäische Richtlinie 2002/96/EC verlangt, dass technische Ausrüstung, die direkt am Gerät und/oder an der Verpackung mit diesem Symbol versehen ist , nicht zusammen mit unsortiertem Gemeindeabfall entsorgt werden darf. Das Symbol weist darauf hin, dass das Produkt von regulärem Haushaltmüll getrennt entsorgt werden sollte. Es liegt in Ihrer Verantwortung, dieses Gerät und andere elektrische und elektronische Geräte über die dafür zuständigen und von der Regierung oder örtlichen Behörden dazu bestimmten Sammelstellen zu entsorgen. Ordnungsgemäßes Entsorgen und Recyceln trägt dazu bei, potentielle negative Folgen für Umwelt und die menschliche Gesundheit zu vermeiden. Wenn Sie weitere Informationen zur Entsorgung Ihrer Altgeräte benötigen, wenden Sie sich bitte an die örtlichen Behörden oder städtischen Entsorgungsdienste oder an den Händler, bei dem Sie das Produkt erworben haben.

Eesti (Estonian) - Keskkonnaalane informatsioon Euroopa Liidus asuvatele klientidele

Euroopa Liidu direktiivi 2002/96/EÜ nõuete kohaselt on seadmeid, millel on tootel või pakendil käesolev sümbol , keelatud kõrvaldada koos sorteerimata olmehäätmeguga. See sümbol näitab, et toode tuleks kõrvaldada eraldi tavalistest olmehäätmeveogudest. Olete kohustatud kõrvaldamama käesoleva ja ka muud elektri- ja elektroonikaseadmed riigi või kohalike ametiasutuste poolt ette nähtud kogumispunktide kaudu. Seadmete korrektna kõrvaldamine ja ringlussevõtt aitab vältida võimalikke negatiivseid tagajärgi keskkonnale ning inimestele tervisele. Vanade seadmete kõrvaldamise kohta täpsema informatsiooni saamiseks võtke palun ühendust kohalike ametiasutustega, jäätmeäitusfirmaga või kauplusega, kust te toote ostsite.

Español (Spanish) - Información medioambiental para clientes de la Unión Europea

La Directiva 2002/96/CE de la UE exige que los equipos que lleven este símbolo  en el propio aparato y/o en su embalaje no deben eliminarse junto con otros residuos urbanos no seleccionados. El símbolo indica que el producto en cuestión debe separarse de los residuos domésticos convencionales con vistas a su eliminación. Es responsabilidad suya desechar este y cualesquier otros aparatos eléctricos y electrónicos a través de los puntos de recogida que ponen a su disposición el gobierno y las autoridades locales. Al desechar y reciclar correctamente estos aparatos estará contribuyendo a evitar posibles consecuencias negativas para el medio ambiente y la salud de las personas. Si desea obtener información más detallada sobre la eliminación segura de su aparato usado, consulte a las autoridades locales, al servicio de recogida y eliminación de residuos de su zona o pregunte en la tienda donde adquirió el producto.

Ελληνικά (Greek) - Στοιχεία περιβαλλοντικής προστασίας για πελάτες εντός της Ευρωπαϊκής Ένωσης

Η Κοινοτική Οδηγία 2002/96/EC απαιτεί ότι ο εξοπλισμός ο οποίος φέρει αυτό το σύμβολο  στο προϊόν και/ή στη συσκευασία του δεν πρέπει να απορρίπτεται μαζί με τα μικτά κοινοτικά απορρίμματα. Το σύμβολο υποδεικνύει ότι αυτό το προϊόν θα πρέπει να απορρίπτεται ξεχωριστά από τα συνήθη οικιακά απορρίμματα. Είστε υπεύθυνος για την απόρριψη του παρόντος και άλλου ηλεκτρικού και ηλεκτρονικού εξοπλισμού μέσω των καθορισμένων εγκαταστάσεων συγκέντρωσης απορριμάτων οι οποίες παρέχονται από το κράτος ή τις αρμόδιες τοπικές αρχές. Η σωστή απόρριψη και ανακύκλωση συμβάλλει στην πρόληψη πιθανών αρνητικών συνεπειών για το περιβάλλον και την υγεία. Για περισσότερες πληροφορίες σχετικά με την απόρριψη του παλιού σας εξοπλισμού, παρακαλώ επικοινωνήστε με τις τοπικές αρχές, τις υπηρεσίες απόρριψης ή το κατάστημα από το οποίο αγοράσατε το προϊόν.

Français (French) - Informations environnementales pour les clients de l'Union européenne

La directive européenne 2002/96/CE exige que l'équipement sur lequel est apposé ce symbole  sur le produit et/ou son emballage ne soit pas jeté avec les autres ordures ménagères. Ce symbole indique que le produit doit être éliminé dans un circuit distinct de celui pour les déchets des ménages. Il est de votre responsabilité de jeter ce matériel ainsi que tout autre matériel électrique ou électronique par les moyens de collecte indiqués par le gouvernement et les pouvoirs publics des collectivités territoriales. L'élimination et le recyclage en bonne et due forme ont pour but de lutter contre l'impact néfaste potentiel de ce type de produits sur l'environnement et la santé publique. Pour plus d'informations sur le mode d'élimination de votre ancien équipement, veuillez prendre contact avec les pouvoirs publics locaux, le service de traitement des déchets, ou l'endroit où vous avez acheté le produit.

Italiano (Italian) - Informazioni relative all'ambiente per i clienti residenti nell'Unione Europea

La direttiva europea 2002/96/EC richiede che le apparecchiature contrassegnate con questo simbolo  sul prodotto e/o sull'imballaggio non siano smaltite insieme ai rifiuti urbani non differenziati. Il simbolo indica che questo prodotto non deve essere smaltito insieme ai normali rifiuti domestici. È responsabilità del proprietario smaltire sia questi prodotti sia le altre apparecchiature elettriche ed elettroniche mediante le specifiche strutture di raccolta indicate dal governo o dagli enti pubblici locali. Il corretto smaltimento ed il riciclaggio aiuteranno a prevenire conseguenze potenzialmente negative per l'ambiente e per la salute dell'essere umano. Per ricevere informazioni più dettagliate circa lo smaltimento delle vecchie apparecchiature in Vostro possesso, Vi invitiamo a contattare gli enti pubblici di competenza, il servizio di smaltimento rifiuti o il negozio nel quale avete acquistato il prodotto.

Latviešu valoda (Latvian) - Ekoloģiska informācija klientiem Eiropas Savienības jurisdikcijā

Direktīvā 2002/96/EK ir prasība, ka aprīkojumu, kam pievienota zīme  uz paša izstrādājuma vai uz tā iesaiņojuma, nedrīkst izmest nešķirotā veidā kopā ar komūnālajiem atkritumiem (tiem, ko rada vietēji iedzīvotāji un uzņēmumi). Šī zīme nozīmē to, ka šī ierīce ir jāizmet atkritumos tā, lai tā nenonāktu kopā ar parastiem mājsaimniecības atkritumiem. Jūsu pienākums ir šo un citas elektriskas un elektroniskas ierīces izmest atkritumos, izmantojot īpašus atkritumu savākšanas veidus un līdzekļus, ko nodrošina valsts un pašvaldību iestādes. Ja izmēšana atkritumos un pārstrāde tiek veikta pareizi, tad mazinās iespējamais kaitējums dabai un cilvēku veselībai. Sīkākas ziņas par novecojuša aprīkojuma izmēšanu atkritumos jūs varat saņemt vietējā pašvaldībā, atkritumu savākšanas dienestā, kā arī veikalā, kur iegādājāties šo izstrādājumu.

Lietuvškai (Lithuanian) - Aplinkosaugos informacija, skirta Europos Sajungos vartotojams

Europos direktyva 2002/96/EC numato, kad įrangos, kuri ir  kurios pakuotė yra pažymėta šiuo simboliu (iveskite simbolį), negalima šalinti kartu su nerūšiuotomis komunalinėmis atliekomis. Šis simbolis rodo, kad gaminj reikia šalinti atskirai nuo bendro buitinių atliekų srauto. Jūs privalote užtikrinti, kad ši ir kita elektros ar elektroninė įranga būtų šalinama per tam tikras nacionalinės ar vietinės valdžios nustatytas atliekų rinkimo sistemas. Tinkamai šalinant ir perdibinant atliekas, bus išvengta galimos žalos aplinkai ir žmonių sveikatai. Daugiau informacijos apie jūsų senos įrangos šalinimą gali pateikti vietinės valdžios institucijos, atliekų šalinimo tarnybos arba parduotuvės, kuriose įsigijote tą gaminį.

Malti (Maltese) - Informazzjoni Ambjentali għal Klijenti fl-Unjoni Ewropea

Id-Direttiva Ewropea 2002/96/KE titlob li t-tagħmir li jkun fih is-simbolu  fuq il-prodott u/jew fuq l-ippakkjar ma jistax jintrema ma' skart municipali li ma ġiex isseparat. Is-simbolu jindika li dan il-prodott għandu jintrema separatament minn ma' l-iskart domestiku regolari. Hija responsabbiltà tiegħek li tarmi dan it-tagħmir u kull tagħmir ieħor ta' l-elettriku u elettroniku permezz ta' facilitajiet ta' ġbir appuntati apposta mill-gvern jew mill-awtoritatijiet lokali. Ir-rimi b'mod korrett u r-riċiklagġ jgħin jipprejjeni konsegwenzi negattivi potenzjali għall-ambjent u għas-saħħha tal-bniedem. Għal aktar informazzjoni dettaljata dwar ir-rimi tat-tagħmir antik tiegħek, jekk jogħġibok ikkuntattja lill-awtoritatijiet lokali tiegħek, is-servizzi għar-riġi ta' l-iskart, jew il-ħanut minn fejn xtrajt il-prodott.

Magyar (Hungarian) - Környezetvédelmi információ az európai uniós vásárlók számára

A 2002/96/EC számú európai uniós irányelv megkívánja, hogy azokat a termékeket, amelyeken, és/vagy amelyek csomagolásán az alábbi címke  megjelenik, tilos a többi szelektálátlan lakossági hulladékkel együtt kidobni. A címke azt jelöli, hogy az adott termék kidobásakor a szokványos háztartási hulladékelszállítási rendszerektől elkülönített eljárást kell alkalmazni. Az Ön felelőssége, hogy ezt, és más elektromos és elektronikus berendezéseit a kormányzati vagy a helyi hatóságok által kijelölt gyűjtőrendszeren keresztül számolja fel. A megfelelő hulladékfeldolgozás segít a környezetre és az emberi egészségre potenciálisan ártalmas negatív hatások megelőzésében. Ha elavult berendezéseinek felszámolásához további részletes információra van szüksége, kérjük, lépjön kapcsolatba a helyi hatóságokkal, a hulladékfeldolgozási szolgáltattal, vagy azzal üzlettel, ahol a terméket vásárolta.

Nederlands (Dutch) - Milieu-informatie voor klanten in de Europese Unie

De Europese Richtlijn 2002/96/EC schrijft voor dat apparatuur die is voorzien van dit symbool  op het product of de verpakking, niet mag worden ingezameld met niet-gescheiden huishoudelijk afval. Dit symbool geeft aan dat het product apart moet worden ingezameld. U bent zelf verantwoordelijk voor de vernietiging van deze en andere elektrische en elektronische apparatuur via de daarvoor door de landelijke of plaatselijke overheid aangewezen inzamelingskanalen. De juiste vernietiging en recycling van deze apparatuur voorkomt mogelijke negatieve gevolgen voor het milieu en de gezondheid. Voor meer informatie over het vernietigen van uw oude apparatuur neemt u contact op met de plaatselijke autoriteiten of afvalverwerkingsdienst, of met de winkel waar u het product hebt aangeschaft.

Norsk (Norwegian) - Miljøinformasjon for kunder i EU

EU-direktiv 2002/96/EØF krever at utstyr med følgende symbol  avbildet på produktet og/eller pakningen, ikke må kastes sammen med usortert avfall. Symbolet indikerer at dette produktet skal håndteres atskilt fra ordinær avfallsinnsamling for husholdningsavfall. Det er ditt ansvar å kvitte deg med dette produktet og annet elektrisk og elektronisk avfall via egne innsamlingsordninger slik myndighetene eller kommunene bestemmer. Korrekt avfallshåndtering og gjenvinning vil være med på å forhindre mulige negative konsekvenser for miljø og helse. For nærmere informasjon om håndtering av det kasserte utstyret ditt, kan du ta kontakt med kommunen, en innsamlingsstasjon for avfall eller butikken der du kjøpte produktet.

Polski (Polish) - Informacja dla klientów w Unii Europejskiej o przepisach dotyczących ochrony środowiska

Dyrektwa Europejska 2002/96/EC wymaga, aby sprzęt oznaczony symbolem  znajdującym się na produkcie i/lub jego opakowaniu nie był wyrzucany razem z innymi niesortowanymi odpadami komunalnymi. Symbol ten wskazuje, że produkt nie powinien być usuwany razem ze zwykłymi odpadami z gospodarstw domowych. Na Państwu spoczywa obowiązek wyrzucania tego i innych urządzeń elektrycznych oraz elektronicznych w punktach odbioru wyznaczonych przez władze krajowe lub lokalne. Pozbywanie się sprzętu we właściwy sposób i jego recykling pomogą zapobiec potencjalnie negatywnym konsekwencjom dla środowiska i zdrowia ludzkiego. W celu uzyskania szczegółowych informacji o usuwaniu starego sprzętu, prosimy zwrócić się do lokalnych władz, służb oczyszczania miasta lub sklepu, w którym produkt został nabity.

Português (Portuguese) - Informação ambiental para clientes da União Europeia

A Directiva Europeia 2002/96/CE exige que o equipamento que exibe este símbolo ☒ no produto e/ou na sua embalagem não seja eliminado junto com os resíduos municipais não separados. O símbolo indica que este produto deve ser eliminado separadamente dos resíduos domésticos regulares. É da sua responsabilidade eliminar este e qualquer outro equipamento eléctrico e electrónico através das instalações de recolha designadas pelas autoridades governamentais ou locais. A eliminação e reciclagem correctas ajudarão a prevenir as consequências negativas para o ambiente e para a saúde humana. Para obter informações mais detalhadas sobre a forma de eliminar o seu equipamento antigo, contacte as autoridades locais, os serviços de eliminação de resíduos ou o estabelecimento comercial onde adquiriu o produto.

Română (Romanian) - Informații de mediu pentru clienții din Uniunea Europeană

Directiva europeană 2002/96/CE impune ca echipamentele care prezintă acest simbol ☒ pe produs și/sau pe ambalajul acestuia să nu fie casate împreună cu gunoiul menajer municipal. Simbolul indică faptul că acest produs trebuie să fie casat separat de gunoiul menajer obișnuit. Este responsabilitatea dvs. să casați acest produs și alte echipamente electrice și electronice prin intermediul unităților de colectare special desemnate de guvern sau de autoritățile locale. Casarea și reciclarea corecte vor ajuta la prevenirea potențialelor consecințe negative asupra sănătății mediului și a oamenilor. Pentru mai multe informații detaliate cu privire la casarea acestui echipament vechi, contactați autoritățile locale, serviciul de salubrizare sau magazinul de la care ați achiziționat produsul.

Slovenčina (Slovak) - Informácie o ochrane životného prostredia pre zákazníkov v Európskej únii

Podľa európskej smernice 2002/96/ES zariadenie s týmto symbolom ☒ na produkte a/alebo jeho balení nesmie byť likvidované spolu s netriedeným komunálnym odpadom. Symbol znamená, že produkt by sa mal likvidovať oddelenie od bežného odpadu z domácností. Je vašou povinnosťou likvidovať toto i ostatné elektrické a elektronické zariadenia prostredníctvom špecializovaných zberných zariadení určených vládou alebo miestnymi orgánmi. Správna likvidácia a recyklácia pomôže zabrániť prípadným negatívnym dopadom na životné prostredie a zdravie ľudí. Ak máte záujem o podrobnejšie informácie o likvidácii starého zariadenia, obráťte sa, prosím, na miestne orgány, organizácie zaobrajúce sa likvidáciou odpadov alebo obchod, v ktorom ste si produkt zakúpili.

Slovenčina (Slovene) - Okoljske informacije za stranke v Evropski uniji

Evropska direktiva 2002/96/EC prepoveduje odlaganje opreme, označene s tem simbolum ☒ – na izdelku in/ali na embalaži – med običajne, nerazvršcene odpadke. Ta simbol opozarja, da je treba izdelek odvreči ločeno od preostalih gospodinjskih odpadkov. Vaša odgovornost je, da to in preostalo električno in elektronsko opremo odnesete na posebna zbirališča, ki jih določijo državne ustanove ali lokalna uprava. S pravilnim odlaganjem in recikliranjem boste preprečili morebitne škodljive vplive na okolje in zdravje ljudi. Če želite izvedeti več o odlaganju stare opreme, se obrnite na lokalno upravo, odpad ali trgovino, kjer ste izdelek kupili.

Suomi (Finnish) - Ympäristöä koskevia tietoja EU-alueen asiakkaille

EU-direktiivi 2002/96/EY edellyttää, että jos laitteistossa on tämä symboli ☒ itse tuotteessa ja/tai sen pakkauksessa, laitteisto ei saa hävittää lajitelemattoman yhdyskuntajätteen mukana. Symboli merkitsee sitä, että tämä tuote on hävitettävä erillään tavallisesta kotitalousjätteestä. Sinun vastuullasi on hävittää tämä elektroniikkatuote ja muut vastaaavat elektroniikkatuotteet viemällä tuote tai tuotteet viranomaisten määräämään keräyspisteesseen. Laitteiston oikea hävittäminen estää mahdolliset kielteiset vaikutukset ympäristöön ja ihmisten terveyteen. Lisätietoja vanhan laitteiston oikeasta hävitystavasta saa paikallisia viranomaisilta, jätteenhävityspalvelusta tai siitä myymälästä, josta ostit tuotteen.

Svenska (Swedish) - Miljöinformation för kunder i Europeiska unionen

Det europeiska direktivet 2002/96/EC kräver att utrustning med denna symbol ☒ på produkten och/eller förpackningen inte får kastas med osorterat kommunalt avfall. Symbolen visar att denna produkt bör kastas efter att den avskiljs från vanlig hushållsavfall. Det faller på ditt ansvar att kasta denna och annan elektrisk och elektronisk utrustning på fastställda insamlingsplatser utsedda av regeringen eller lokala myndigheter. Korrekt kassering och återvinning skyddar mot eventuella negativa konsekvenser för miljön och personhälsa. För mer detaljerad information om kassering av din gamla utrustning kontaktar du dina lokala myndigheter, avfallshanteringen eller butiken där du köpte produkten.



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